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FINAL REPORT OF THE

RUBY RIVER RESERVOIR

TASK FORCE

JUNE 1995

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Ruby River Reservoir Task Force

FINAL REPORT

June 1995

Ruby River Reservoir Task Force

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Chapter 1
Introduction

Mark Simonich, Director of the Department of Natural Resources and Conservation (DNRC), appointed the Ruby River Reservoir Task Force in October 1994 after a fish kill occurred in the Ruby River below the reservoir.

Simonich charged the Task Force with developing the following items:

- Minimum reservoir pool size.
- River dewatering prevention plan.
- Reservoir operation guidelines.
- Water delivery plan.
- A monitoring and implementation plan for the above.

Simonich originally appointed 13 members to the Ruby River Reservoir Task Force. The Task Force decided to add another member who would represent those water users who have only decreed rights. A list of the 14 Task Force members is included in Appendix A.

The following interests were represented on the Task Force:

- Irrigators with contracts to purchase water from the Ruby River Reservoir.
- Irrigators with decreed water rights that pre-date the reservoir.
- Recreational water users and recreation-based businesses.
- Persons interested in protecting the fishery.
- DNRC, which owns the dam.

The Task Force met nine times between October 1994 and May 1995. Many other Ruby Valley residents attended and participated in Task Force meetings. Minutes from the Task Force meetings are included in Appendix B. This report provides background information and presents the final recommendations of the Ruby River Reservoir Task Force.

The Ruby River Reservoir Task Force proved to be a valuable forum for all participants to learn about water use and to collectively identify actions that can be taken to improve water management in the Ruby River valley. The Task Force is a successful example of local people working together to solve problems.

Chapter 2
Background Information
Water Use in the Ruby River Valley

Introduction

The Ruby River drains portions of the Gravelly, Snow Crest and Green Horn mountain ranges in the southern part of Madison County. It flows north approximately 65 miles to its confluence with the Beaverhead River, three miles upstream from Twin Bridges.

The Ruby River is an important source of water for irrigation and recreation in Madison County. The river is home to trout, mountain whitefish and other nongame fish species. Trout populations are dominated by rainbows above the reservoir and browns below the reservoir. The lower reach of the Ruby River provides important spawning habitat for brown trout from the Jefferson River.

Ruby Reservoir Project

The Ruby River dam is located six miles south of Alder in Madison County, Montana (see Figure 1). The dam was constructed by the State Water Conservation Board (predecessor to the DNRC). Construction was completed in 1938. The drainage area above the reservoir is approximately 596 square miles. The reservoir has a useable capacity of 37,612 acre-feet with flash boards.

The project provides water to irrigate 29,330 acres of land and also provides supplemental water for another 12,135 acres (SCS, 1986). Although the project was built to supply water for irrigation, long-time residents report that the Ruby River Valley has become more green and the habitat for fish and wildlife has improved since the project was built.

Water from the Ruby River Storage project is supplied to private diversions through the Ruby River and through two canals, the Vigilante and West Bench canals (see Figure 2). Figure 3 shows the locations of major ditch diversions on the Ruby River.

The West Bench Canal is approximately 12 miles long and has a capacity of 173 cubic feet per second (cfs). The Vigilante Canal is approximately 26 miles long and has a capacity of 182 cfs. Water is diverted into these canals via a short Main Canal which begins approximately one mile below the dam.

The Ruby River Reservoir is owned by the DNRC and operated by the Ruby River Water Users' Association (RRWUA). The RRWUA was incorporated in 1936. The DNRC contracts with the RRWUA to operate and maintain the dam and to market the

water supplied by the project. The RRWUA has 103 contract holders representing 264 contracts totalling 38,845.5 acre-feet of water.

Separate associations are responsible for the West Bench and Vigilante canals. Ownership of these two canals was transferred from the DNRC to the canal associations in January 1995. The West Bench Canal Users' Association and the Vigilante Canal Users' Association were incorporated in 1943. The presidents of these two associations also serve on the Board of the RRWUA, commonly known as the "River Board."

Water Rights

The Madison County District Court issued a decree (commonly referred to as the "Padbury Decree") for the Ruby River in 1956.[1] Water users with decreed water rights recently formed an organization (the Ruby Decreed Water Users).

The Montana Water Court is currently in the process of conducting a statewide adjudication of all water rights with a priority date before July 1, 1973. A temporary preliminary decree was issued for the Ruby River Basin (#41C) on November 14, 1990. A total of 2,152 claims were included in the temporary preliminary decree. The period for filing objections to the temporary preliminary decree closed August 21, 1991.

The next step is for the Water Court to hold hearings on objections. A preliminary decree will be issued when federal reserved water rights compacts are negotiated. It is not known when these next steps will occur. A final decree will be issued after all federal reserved rights are negotiated and all objections are resolved.

In 1993, the Montana Legislature passed a bill (SB 282) that closed the Jefferson and Madison river basins to new appropriations. This area includes the entire Ruby River basin. The closure only applies to surface water. The following exceptions are permitted: nonconsumptive uses; domestic, municipal, or stock uses; storage of water during high spring flows; and temporary emergency uses. The basin closure does not affect existing water rights.

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[1]John F. Dauterman, et al. vs. Gilbert Livestock Company, November 7, 1956.

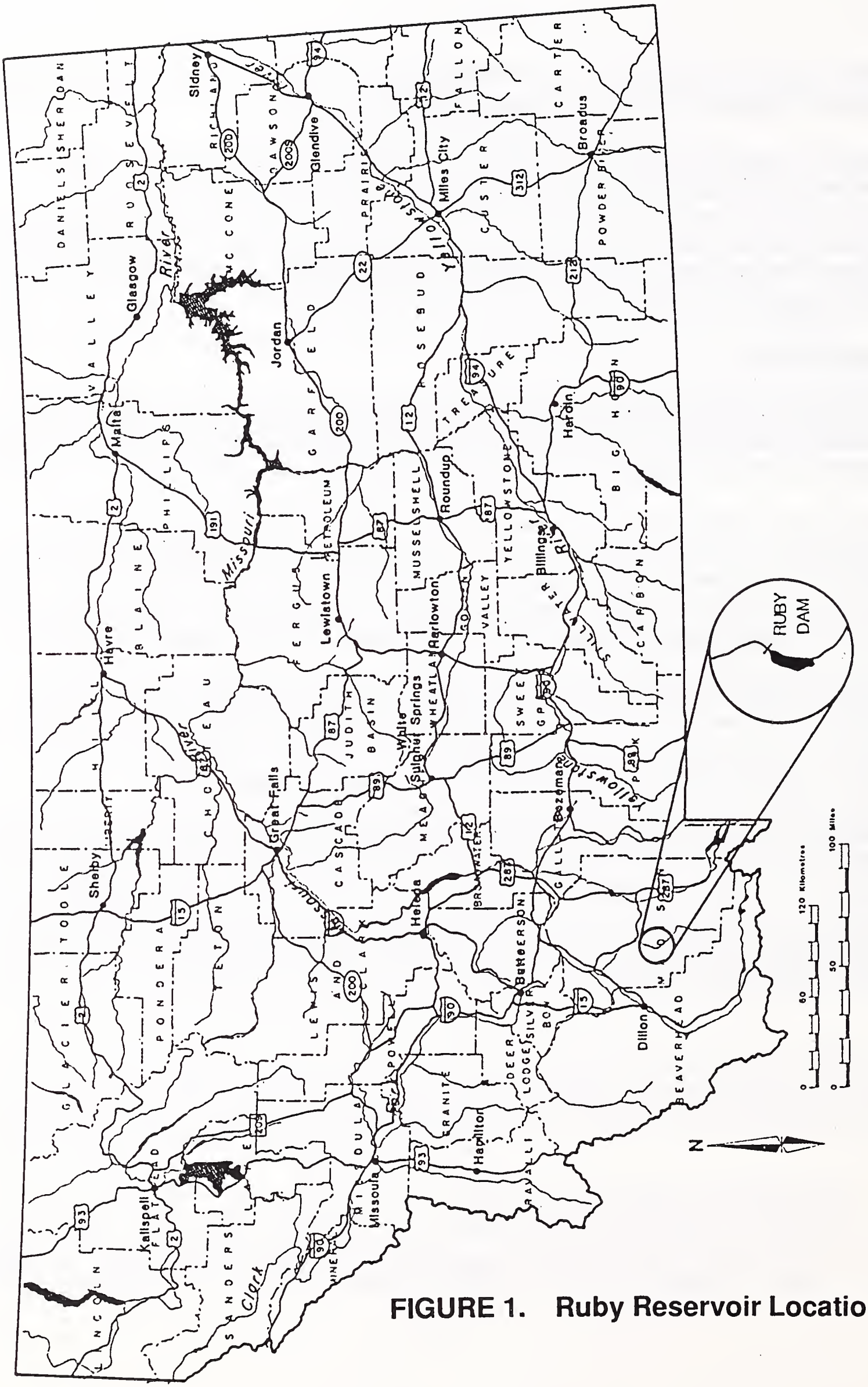

FIGURE 1. Ruby Reservoir Location Map

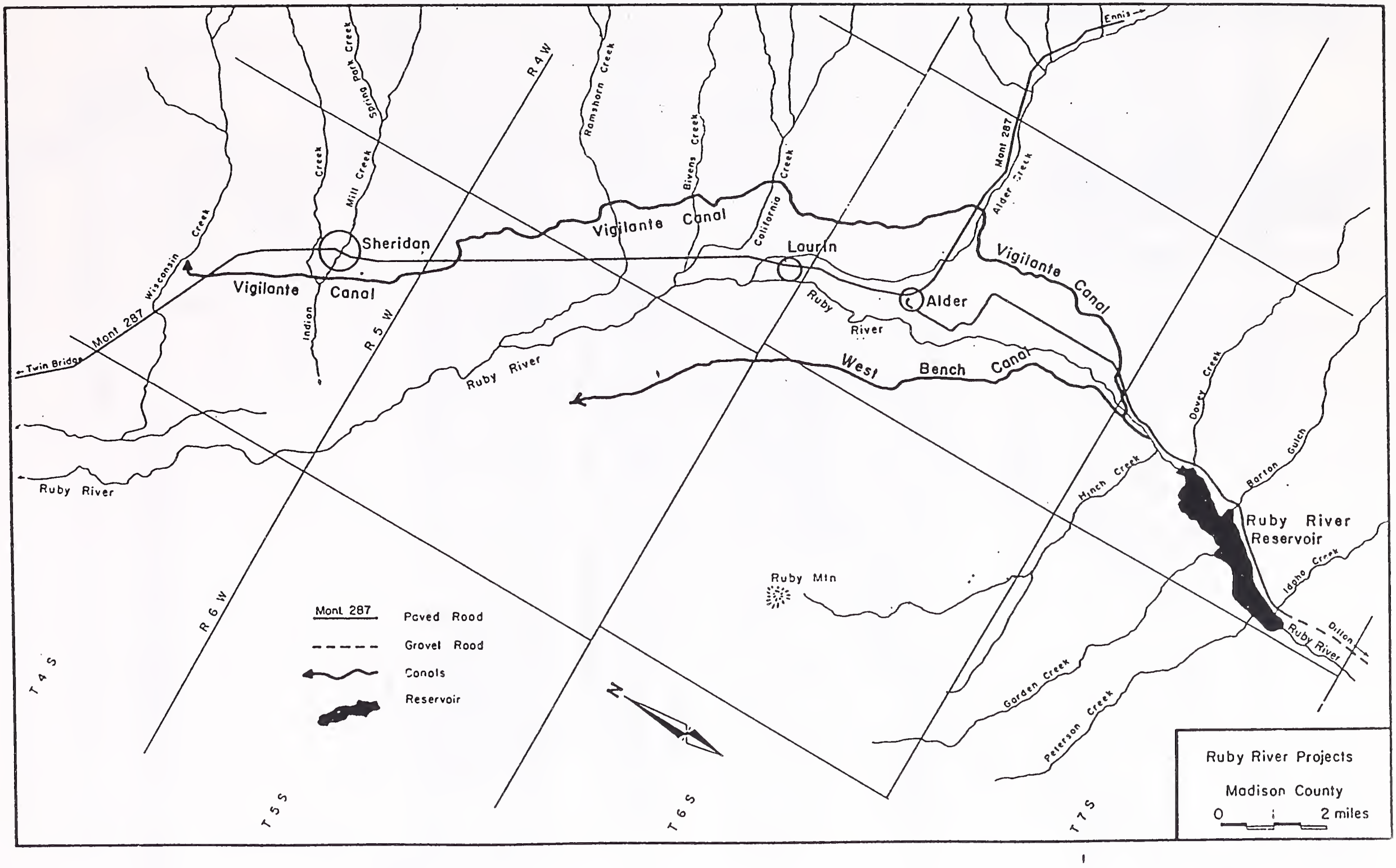

FIGURE 2. Ruby Reservoir and Canals

No.	Ditch Name	M.I.	CFS
1.	State of Montana	14,035.2	(350.88)
2.	Ruby Canyon	1,509.6	(37.74)
3.	Passamari	1,500.8	(37.52)
4.	Stanley	3,076.4	(76.91)
5.	Bob Peters	200.0	(5.00)
6.	Phillips	394.4	(9.86)
7.	Elser-Finely-Norton	563.2	(14.08)
8.	Putnam	725.6	(18.14)
9.	Dauterman-Moran-Island	252.8	(6.32)
10.	Ruby Valley	2,464.0	(61.60)
11.	Laurin	500.0	(12.50)
12.	Schoolhouse No. 2	399.4	(9.98)
13.	Schoolhouse No. 1	502.0	(12.55)
14.	Tunnel	1,055.6	(26.39)
15.	Fullerdick-Hyndman-Moulton	2,200.0	(55.00)
16.	Duncan-Edleman	2,116.0	(52.90)
17.	Clark-Sennett	1,313.2	(32.83)
18.	Thompson	1,700.4	(42.51)
19.	Baril-Talty	600.0	(15.00)
20.	Nelson	250.0	(6.25)
21.	Jones	240.0	(6.00)
22.	Schoolhouse Slough	100.0	(2.50)
23.	Sarge Hall	1,400.0	(35.00)
24.	Lewis-Jenkins	250.0	(6.25)
25.	Ellis-Thomas	100.0	(2.50)
26.	Gum Foot Thomas	375.2	(9.38)
27.	Frieler	125.2	(3.13)
28.	Seyler	440.0	(11.00)
29.	Small	640.0	(16.00)

Note: Flow amounts taken from DNRC Water Rights Bureau listing of claims.

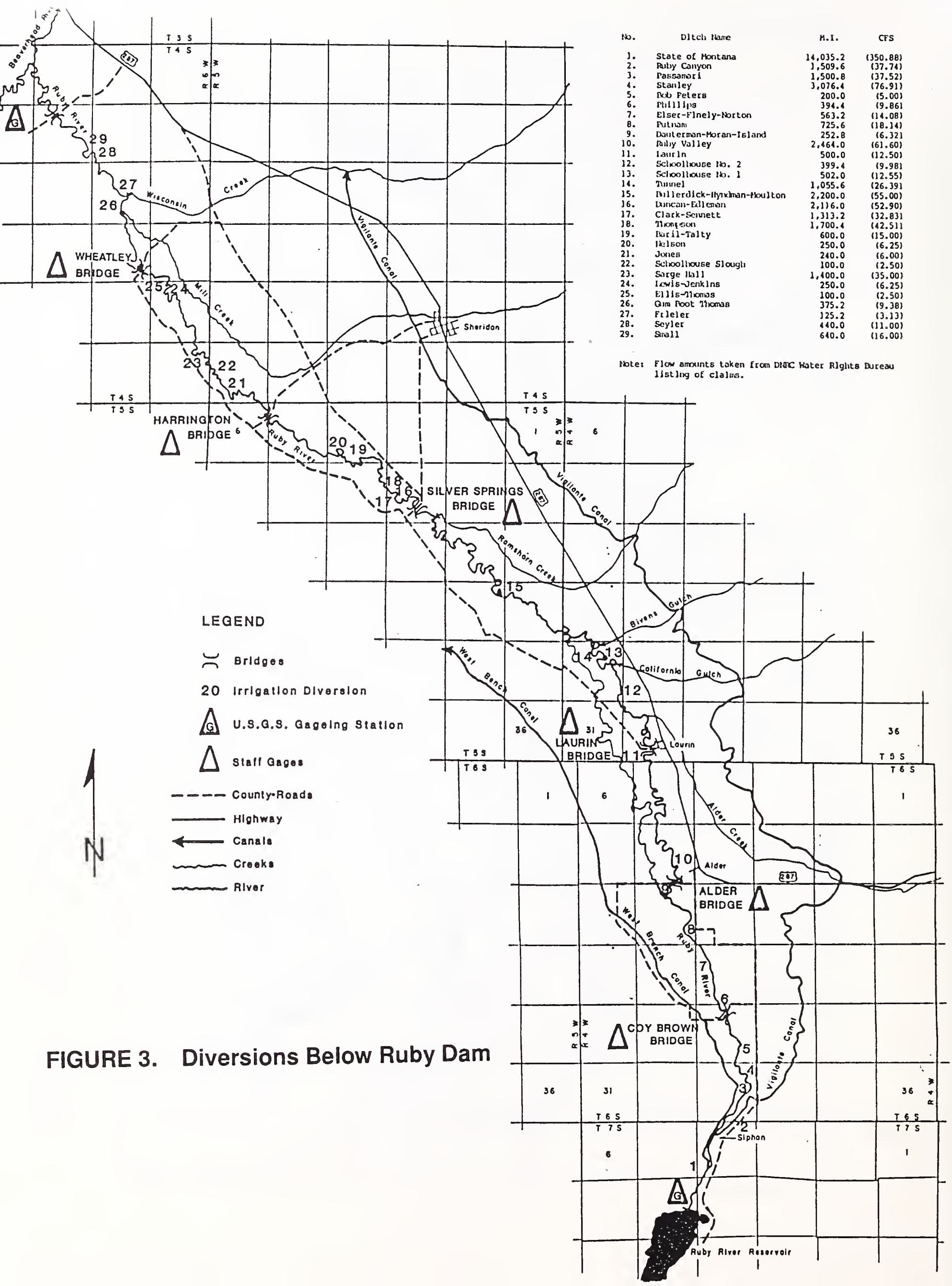

FIGURE 3. Diversions Below Ruby Dam

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[1]John F. Dauterman, et al. vs. Gilbert Livestock Company, November 7, 1956.

Chapter 3
Background Information
1994 Sediment Spill

Introduction

The Ruby River Reservoir was completely drained some time on September 1, 1994. When the reservoir was drained, the river flowing through the reservoir began to erode a channel through the sediment in the bottom of the reservoir and a large volume of sediment was suddenly discharged into the Ruby River below the reservoir outlet. This resulted in one of the largest fish kills that has occurred in Montana in the last twenty years. A large amount of sediment was deposited in the river below the dam.

Immediate Impacts of Sediment Spill

On September 2, 1994 staff from the DNRC, the Department of Fish, Wildlife and Parks (DFWP), and the Department of Health and Environmental Sciences (DHES) travelled to the site to measure water quality and evaluate the situation. The discharge gate in the dam was closed on September 2 in an effort to create a pool of water and reduce the sediment load in the Ruby River. Within 24 hours a pool was developed that was sufficient to stop most of the headcutting in the reservoir that was causing the sedimentation problem downstream.

The West Bench and Vigilante canals and some private ditch diversions were open below the dam. Therefore, the majority of the sediment-laden water was diverted into the canals. As a result, virtually all of the sediment deposit was contained within the first three miles of the river and the total area of fish mortality was limited to the area between the dam and 2 ½ miles downstream.

Fishery

A fish mortality survey conducted by Dick Oswald (DFWP) on September 2, 1994 revealed 2,562 dead trout (DFWP, September 7, 1994). Approximately 90 percent of the dead trout were rainbow trout and 10 percent were brown trout. The majority of the fish killed are believed to be rainbow trout that were washed out of the reservoir. This figure is believed to represent a small portion of the actual fish mortality for three reasons: 1) visibility was very limited and only visible fish were counted; 2) large numbers of fish were washed into the canals and these were not counted; and 3) additional mortality likely occurred after the survey was completed. The total mortality is estimated to be between 10,000 and 15,000 fish.

On October 19, 1994 a group of Ruby Valley ranchers and anglers worked together to help the DFWP move 2,775 rainbow trout from the Ruby River back into the Ruby Reservoir. Dick Oswald of DFWP estimated that two-thirds to eighty percent of the

trout that had been washed out of the reservoir and survived were moved back into the reservoir.

The Department of Fish, Wildlife and Parks used gillnets to collect fish in the Ruby River Reservoir in the spring of 1995. They collected seven suckers, 27 rainbow trout, no brown trout and no whitefish. Twenty-six of the 27 rainbow trout had been marked when they were moved from the river back into the reservoir last fall. This indicates that the rainbow trout population numbers less than 3,000 fish and the vast majority of the fish in the reservoir consist of rainbow trout that were relocated from the river back to the reservoir in October 1994. The Department of Fish, Wildlife and Parks planned to plant 50,000 Eagle Lake rainbow trout in the reservoir in June 1995.

Water Quality

The DHES collected samples from the Ruby River on September 2, 1994 (DHES, September 6, 1994). Turbidity levels below the dam exceeded 999 nephelometric turbidity units (NTU), which is the maximum reading for the instrument used for measurement. In comparison, the turbidity level above the dam was 8 NTU. Four miles below the dam turbidity levels decreased to approximately the same level as that measured above the reservoir.

Dissolved oxygen concentrations were zero milligrams per liter (mg/l) at the dam outlet, in comparison with 12 mg/l above the reservoir. Dissolved oxygen concentrations increased to approximately 8 mg/l at a site one-half mile below the dam and 11 mg/l six and one-half miles below the dam. The one day minimum water quality standard for dissolved oxygen is 4 mg/l for adult fish and 8 mg/l for juvenile fish. These are the levels required to protect salmonids and aquatic organisms.

Sediment Management Plan

Approximately 3,000 cubic yards of sediment were deposited in the first three miles of the Ruby River channel below the dam. The sediment had blanketed the streambed gravel, leaving conditions that are unsuitable for the production of aquatic insects and other invertebrates that provide food for fish.

The DNRC developed a plan for controlled flushing of the sediment during the spring of 1995. The goal of the plan was to move as much sediment as possible into irrigation diversions while maintaining the concentrations of sediment and dissolved oxygen at levels that are not harmful to fish.

The sediment management plan had three phases. During the first phase, outflows from the dam were gradually increased and water quality was monitored in order to determine the optimum range of flows for moving sediment. During the second phase, sediment-containing water was diverted through irrigation canals and onto fields.

Water quality was monitored and concentrations of sediment and dissolved oxygen did not reach levels that are harmful to fish.

The third phase began when the reservoir filled and water began to flow over the spillway on May 22. High flows were expected to move the remaining sediment downstream. The third phase was still in progress when this report was written.

After flows decrease, the DNRC will survey the streambed to see if there is any remaining sediment.

Consent Decree for the Water Quality Violation

The DHES, DNRC and the RRWUA negotiated a consent decree (see Appendix C) that describes the steps that will be taken to address the water quality violations that occurred when the reservoir was drained. In addition to taking steps to come into compliance with water quality regulations, the parties agreed that the DNRC and the RRWUA would perform supplemental resource protection and conservation activities in lieu of paying a cash penalty.

The consent decree requires the DNRC and RRWUA to do the following:

- Submit a Reservoir Operations Plan to the DHES.

  The reservoir operations plan must include:

  a) a map showing the current capacity of the reservoir;
  b) a minimum reservoir pool that is adequate to prevent excessive sediment discharge;
  c) guidance for DNRC and RRWUA staff regarding the decision-making process for operation of the dam on a daily basis and in an emergency; and
  d) a reservoir pool level that will trigger closer monitoring of reservoir discharge rates.

- Implement the sediment management plan described above.

- Maintain a minimum pool of 2,600 acre-feet.

- Maintain a minimum flow of 20 to 30 cubic feet per second (cfs) at the dam from November through March.

- Install four stream gaging stations during the summer of 1995.

- Actively work with the decreed water users to ensure that measuring devices will be installed within the next five years where necessary and critical in order to ensure adequate delivery of water for irrigation and to prevent dewatering.

- Submit a brief annual report to DHES summarizing implementation of the compliance measures.

Chapter 4
Task Force Recommendations
Minimum Pool Policy and Reservoir Operating Guidelines

Introduction

The following steps were taken in order to ensure that the reservoir is not drained again and to prevent excessive sediment discharge:

- The DNRC mapped the reservoir to determine the current capacity.
- The Task Force developed a plan for maintaining a minimum pool in the Ruby River Reservoir.
- The DNRC and the RRWUA drafted reservoir operating guidelines that incorporate the minimum pool policy.

Reservoir Capacity

Sediment has been gradually deposited in the reservoir since it was constructed in 1938, resulting in a loss of capacity. It is important to know the current reservoir capacity in order to maintain a minimum pool in the reservoir. The DNRC completed mapping of the reservoir in November 1994. The new area-capacity curve developed from this map shows that approximately 2,200 acre-feet of capacity has been lost since the reservoir was constructed. This amounts to a loss of about one-tenth of one percent per year or six percent of the total capacity at the time of construction. This sedimentation rate is one of the lowest for state-owned water projects in Montana.

The Task Force discussed the following ways that reservoir capacity could be increased:

- Dredging the reservoir.
- Expanding the reservoir capacity.
- Reducing the rate of sedimentation by changing land management practices upstream.

Dredging

Dredging the reservoir was found to be expensive. The estimated costs of dredging the reservoir range from approximately seven million to 21.5 million dollars, depending on who does the dredging and whether or not the sediment has to be transported away from the reservoir.

Expanding Reservoir Capacity
The Task Force co-chairs sent a letter to Governor Racicot and David Lewis, director of the Governor's budget office, asking them to include funding for a study on the feasibility of expanding and rehabilitating the Ruby River Reservoir in the budget for the 1996-1997 biennium.

The DNRC had initially included funding for this study in its budget for the next biennium. However, due to a projected budget deficit it was necessary to eliminate some items from the budget. A decision was made to postpone this feasibility study in order to balance the Resource Indemnity Trust Fund account.

Plan for Maintaining a Minimum Pool

The Ruby River Reservoir Task Force considered the following factors in developing a plan for maintaining a minimum pool in the Ruby River Reservoir:

- Delivery of water downstream to fulfill contracts and decreed rights for irrigation.
- Delivery of water downstream for the river fishery.
- The reservoir fishery.
- Water quality downstream of the reservoir.

The DFWP identified 10,000 acre-feet as the optimal target pool for maintaining a reservoir fishery. Historically, the reservoir has been at this level or higher most of the time. DFWP considers 6,500 acre-feet to be the minimum target pool for maintaining the reservoir fishery. Historically, the contents of the reservoir have been at this level or higher about 96 percent of the time. However, in dry years it may be necessary to draw down the reservoir below this level in order to meet downstream water needs.

If the reservoir level drops to 7,500 acre-feet, the RRWUA, the DNRC and DFWP will meet to discuss future operation of the reservoir and to determine what accommodations need to be made in order to maintain a minimum pool. The reservoir will not be drawn down below 2,600 acre-feet, which is the absolute minimum pool.

The RRWUA and the DNRC have developed reservoir operating guidelines that require the RRWUA to maintain the minimum pool in the reservoir at 2,600 acre-feet. The RRWUA will determine how to maintain a minimum pool using whatever means necessary.

Initially, the RRWUA plans to maintain the minimum pool through a ten-year agreement with Turner Enterprises. Turner Enterprises will leave its 2,634 acre-feet of contract water in the reservoir. In return, the RRWUA will waive payment of the principal and operating costs associated with the 2,634 acre-feet of contract water.

Reservoir Operating Guidelines

The RRWUA and the DNRC will enter into a written agreement concerning operation of the reservoir, including maintaining a minimum pool. The reservoir operating guidelines are presented in Appendix D.

The Ruby Dam is classified as a high-hazard dam. The Montana Dam Safety Act requires that operating permits be obtained for all high-hazard dams by July 1, 1995. The operating permit requires that an emergency plan be in place and that the dam be operated in accordance with a manual for operation and maintenance. These documents are available from the DNRC.

FIGURE 4. Discussing Water Rights

Discussing Water Rights, A Western Pastime

Photograph © Paul Stanton
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Chapter 5
Task Force Recommendations
Water Delivery and Dewatering Prevention Plan

Introduction

During dry years with little runoff, flows in the Ruby River are sometimes inadequate to satisfy irrigation demands and also to sustain the fishery. Some stretches have been dewatered. Inadequate flows are mostly likely to occur in the fall and in May, when large initial irrigation diversions take place at the same time. This plan is intended to prevent dewatering and to provide adequate flows in all stretches of the Ruby River to satisfy senior water rights and also to sustain the fishery.

Background Information

In May of 1985 and 1987, dewatering of the stream near Harrington Bridge resulted in fish kills and shortages of irrigation water for downstream water users. The dewatering resulted from the following conditions: less than average snowpack, extremely low spring precipitation, high spring temperatures, poor soil moisture conditions and large irrigation withdrawals.

Systematic observations carried out during 1985 and 1987 revealed that an outflow of 450 cfs from the dam was not sufficient to restore streamflow in the Harrington reach because water was diverted from the river via irrigation canals between the dam and the Alder bridge. Streamflow in the Harrington reach was restored when dam outflow was increased to 650 cfs. These incidents are described in more detail in the 1988 Plan to Avoid Dewatering of the Ruby River Project (see Appendix E).

Reaches Susceptible to Low Flow Conditions

In the 1988 Plan to Avoid Dewatering of the Ruby River Project, the Harrington reach was identified as the most susceptible to dewatering. Water users report that it can be difficult to satisfy water rights on the lower end of the river near Seyler Bridge when irrigation first begins in May. Low flows have also been observed in the Ruby River between Alder and Laurin and at the Coy Brown Bridge. Low flows are most likely to occur in the fall in this portion of the river.

Defining Adequate Flows

The amount of water needed to satisfy irrigation demands is difficult to define. Water users may have contracts for stored water or decreed water rights or both. The RRWUA releases stored water for use by contract holders upon demand. The amount of water flowing into the reservoir should be released from the dam for use by decreed

water right holders in the order of priority established by the Padbury Decree, if there is a demand for the water.

The amount of water that should be in the river to satisfy senior water rights at a particular point depends upon the following factors:

- The rate of inflow to the reservoir.
- Demand for water for irrigation (decreed and stored water).
- The water right established by the Padbury decree.
- The extent to which releases from the dam are augmented by return flows.

At present, there is only one continuous stream gaging station on the lower portion of the Ruby River (below the dam). That station is operated by the United States Geological Survey and it is located immediately below the Ruby Dam. More stream gaging stations are needed on the Ruby River in order to define flow levels that are adequate to satisfy senior water rights and to sustain the fishery. In addition, measuring devices need to be installed on irrigation ditches in order to evaluate whether or not water rights are being satisfied.

The DFWP used the wetted perimeter method to determine the flows needed to protect aquatic habitat and to maintain the fishery in the Ruby River. For the reach from the dam to the mouth of the Ruby River, DFWP identified 25 cfs (1,000 miner's inches) as the minimum flow needed and 40 cfs (1,600 miner's inches) as the optimum flow.

Actions to Improve Water Delivery and Prevent Dewatering

A Plan to Avoid Dewatering of the Ruby River Project was developed by the DNRC, the RRWUA, and DFWP in April 1988. During the winter of 1994-1995, the decreed water users developed a supplement to that plan (Appendix F). The measures identified below are based largely on these two documents.

The following measures will improve water delivery and prevent dewatering:

- Improved communication.
- Streamflow monitoring.
- Installation of adjustable headgates and measuring devices.
- Staggering of irrigation diversions.
- Early spring and late fall irrigation.
- Water conservation.
- An action plan to be implemented when dry conditions are predicted.
- Identification of minimum flows for key points in the river within 5 to 10 years.

These actions are described in more detail in the following sections. The dewatering prevention plan will be evaluated each year in light of streamflow data.

Improved Communication

The formation of the Ruby Decreed Water Users will result in improved communication and coordination among individual water users. The decreed water users have arranged for someone (currently the dam tender) to monitor water levels and water demand. They have selected a representative for each ditch and have also appointed a committee that consists of a president and seven people who each represent approximately five ditches (see Appendix H). These representatives will relay information about water levels and water demand to individual water users. Representatives are responsible for advising water users on their respective ditches to cut back or increase their water use, based on river levels and water demand downstream. The organization is flexible; the structure will change as needed.

Streamflow Monitoring

Four additional stream gaging stations with continuous recorders will be installed near the following bridges: Alder, Silver Springs, Harrington and Wheatley. Responsibilities for installation, operation and maintenance will be shared by the RRWUA, the DNRC and the Ruby Decreed Water Users (see Appendix G). The DNRC will disseminate flow data to the RRWUA, the Ruby Decreed Water Users, DFWP and other interested parties.

Staff gages will be used to obtain instant visual readings of water levels. Existing staff gages will be rated and, if necessary, new staff gages will be installed at the following bridges: Coy Brown, Alder, Laurin, Harrington, Wheatley, Silver Springs and Seyler.

Staff gages will be read by volunteers as specified under "Action Steps" and gage height readings will be reported to the dam tender. The dam tender will report staff gage readings to the DNRC.

The DNRC will provide rating tables and training to anyone who is interested in reading staff gages.

Adjustable Headgates and Measuring Devices

The decreed water users are encouraging the installation of adjustable headgates and measuring devices on all ditches originating at the Ruby River or Clear Creek by May 1, 1998 so that water use can be monitored and documented. Water users will contact the following agencies and organizations for financial assistance: Natural Resources Conservation Service, DHES, DFWP, DNRC, the Headwaters Resource Conservation and Development District and Trout Unlimited.

The amount of water that is diverted into the West Bench and Vigilante canals will continue to be measured with continuous stream level recorders. The RRWUA will monitor these recorders.

Staggering of Irrigation Diversions
The Ruby River has been dewatered in May when large irrigation withdrawals were made simultaneously and releases from the dam were not sufficient to meet the demand. The RRWUA and the Ruby Decreed Water Users will promote staggering of turnout dates in irrigation diversions to help alleviate water flow problems during peak demand.

Early Spring and Late Fall Irrigation
Water users report that flows are usually adequate in the lower portion of the Ruby River once return flows begin to supplement releases from the dam. Early spring and late fall irrigation will be encouraged to supply optimum return flows. Early spring irrigation is difficult for many Ruby Valley water users because cattle are occupying the fields that would be irrigated.

Water Conservation
In order to conserve water and put it to beneficial use, ditches will be thoroughly cleaned to facilitate water flow. Water users will be encouraged to adjust headgates to reduce the amount of water diverted from the river when water is not needed for irrigation.

Action Plan

Each year before April 1, the DNRC, the RRWUA and the Ruby Decreed Water Users will confer to evaluate snowpack, reservoir storage, streamflow, streamflow forecast and soil moisture. If conditions indicate that a dry, low runoff spring is likely, the following steps will be taken to prevent dewatering.

- The DNRC, the Ruby Decreed Water Users and the RRWUA will meet as soon as the April snow survey data are available to evaluate conditions and discuss future actions. Provisions will be made for some Ruby Valley water users to begin irrigation diversions as early as the second half of April if dry, low runoff conditions persist.

- If dry, low runoff conditions persist, Ruby Valley water users will begin selective irrigation diversions on an agreed upon date as early as the second half of April. The beginning of irrigation on an agreed-upon date will trigger monitoring of the Ruby River by designated observers (see Appendix H). The dam tender will notify the DNRC as to the magnitude of withdrawals at the Ruby River Reservoir project's canal diversions and the expected dam releases and changes in

diversions. Staff gages will be read and recorded daily by the observers. DNRC will contact the dam tender to receive gage height readings.

- If flows at the staff gages drop to the levels indicated below, the RRWUA will notify the DNRC and the Ruby Decreed Water Users as soon as possible.

Coy Brown Bridge	3.8
Silver Springs Bridge	1.6[2]

This will give an early warning of the potential for dewatering and the need to conserve water.

- If flows at Silver Springs drop to a gage height of 1.42 feet during the irrigation season OR anytime that flows in the Ruby River fall below an adequate level to meet senior water rights or to sustain the fishery, the dam tender will immediately notify the DNRC, DFWP and the Ditch Directors of the Ruby Decreed Water Users. The Ditch Directors will notify individual ditch representatives.

  The following steps will be taken to prevent dewatering:

  1) Ditch representatives will contact individual water users and adjust the headgate so that diversions from all ditches are cut back by five percent. The Vigilante and West Bench canals will also be cut back by five percent unless the canals are only diverting stored water.

  2) If step 1) does not establish adequate flows, ditch representatives will contact individual water users and diversions will be cut back according to priority dates established in the Padbury decree.

  3) As a last resort, DNRC and/or RRWUA will immediately increase dam releases and/or reduce diversions in order to maintain flows at a gage height of 1.42 feet at Silver Springs.

  4) RRWUA observers will continue to monitor and report gage heights until flows are adequate and stable. [A gage height of 1.6 at the Silver Springs

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[2]The DNRC will rate the staff gage at the Silver Springs Bridge during the 1995 irrigation season to determine whether the gage height for the corresponding flow has changed since 1988, when this level was identified in the Plan to Avoid Dewatering of the Ruby River Project. If necessary, this number will be revised.

bridge was defined as a stable flow in the 1988 Plan to Avoid Dewatering of the Ruby River Project.] Gage heights representing stable flows will be identified after the 1995 irrigation season.

The RRWUA, the Ruby Decreed Water Users, DFWP and DNRC will confer to determine when dam releases and/or canal diversions can be adjusted back to normal operating conditions.

- If dewatering occurs, ditch representatives from the two primary diversions immediately upstream from the dewatered reach will contact individual water users and adjust the headgate to cut back diversions to adequately satisfy minimum flows until sufficient water can be delivered from other diversions as outlined above.

Monitoring and Evaluation Plan

At the end of each irrigation season, representatives of the RRWUA, the Ruby Decreed Water Users, DNRC, DFWP, environmental organizations and recreation-based businesses will meet to review the flow data and discuss any problems that occurred during the irrigation season. The action plan may be revised, if necessary, based on the insights gained during the irrigation season. Staff gage heights that trigger monitoring or other actions will be identified.

Following the 1999 irrigation season and prior to the beginning of the 2000 irrigation season, representatives of the RRWUA, the Ruby Decreed Water Users, DNRC, DFWP, environmental organizations and recreation-based businesses will meet to review the flow data and establish minimum flows for key points in the river. Minimum flows will be established that are adequate to maintain senior water rights, which in turn should provide an adequate flow to sustain the fishery in the river.

If there is not enough information to identify minimum flows prior to the 2000 irrigation season, then minimum levels will be identified as soon as possible and no later than 2005.

References

Montana Department of Health and Environmental Sciences (DHES). September 6, 1994. Field Report re: Sampling and Site Inspection of Ruby River Reservoir.

Montana Department of Fish, Wildlife and Parks (DFWP). September 7, 1994. Memorandum from Dick Oswald to Dick Vincent re: Ruby River Sediment Spill and Resultant Fish Kill.

Montana Department of Natural Resources and Conservation (DNRC). March 1995. Ruby River Sediment Management Plan.

_____. March 1995. Final Environmental Assessment for the Ruby River Sediment Management Plan.

Plan to Avoid Dewatering of the Ruby River Project. 1988.

Ruby Decreed Water Users. January 1995. Ruby River Dewatering Prevention Plan.

U.S. Department of Agriculture, Soil Conservation Service (SCS) May 1986. Ruby River Reservoir Operating Guide.

APPENDICES

Appendix A

Ruby River Reservoir Task Force
Mission and Membership

Appendix A

Ruby River Reservoir Task Force
Mission and Membership

Goals

To develop the following items by March 31, 1995:

1. Minimum reservoir pool.
2. River dewatering prevention plan.
3. Reservoir operation guidelines.
4. Monitoring and implementation plan.
5. Water delivery plan.

Membership

Members are appointed by the Director of the Department of Natural Resources and Conservation. The members of the Task Force are listed below.

Jim Anderson
P.O. Box 101, Alder, 842-5278
John Anderson
P.O. Box 85, Alder, 842-5306
Jay Barnosky
601 Ruby River Drive, Sheridan, 842-5261
Steve Burke
249 Ruby River Road, Sheridan, 842-5152
Gary Fritz
1520 East Sixth Avenue, Helena, 444-6605 (w), 443-3631 (h)
Charlie Galiger
36 Mill Gulch Road, Laurin, 842-5643
Ed Guinnane
Box 57, Alder, 842-5675
Paul Moseley (Co-chair)
P.O. Box 197, Sheridan, 842-5012
Dick Oswald
214 S Argenta, Dillon, 683-9310 (w) 683-2601 (h)
Keith Stone
225 Carey Lane, Sheridan, 842-5605
George Swan (Co-chair)
100 Silver Spring Road, Sheridan, 842-5929
George Trischman
P.O. Box 452, Twin Bridges, 684-5719
Scott Waldie
61 Kearney Road, Sheridan, 842-5763
Al Wind
S of Twin Bridges, 684-5512

Appendix B

Task Force Meeting Minutes

Ruby River Reservoir Task Force
Meeting Agenda
October 14, 1994
Blue Anchor Restaurant Banquet Room, Twin Bridges

1:30 p.m.	Welcome and Introductions — Mark Simonich
1:45 p.m.	Mission and Membership of Task Force — Mark Simonich
2:00 p.m.	Project Background--Glen McDonald

a. Project History
b. Project Financing
c. Project Water Use

3:00 p.m. Reservoir Operation--Glen McDonald/Neil Todd

a. Reservoir Filling
b. Releases
c. Carryover Storage

4:00 p.m. Description of Fish Kill — Dick Oswald
DHES Response - Steve Pilcher
DNRC Response - Gary Fritz

4:30 p.m. Next Meeting

5:00 p.m. Adjourn

Ruby River Reservoir Task Force

Final Meeting Minutes
October 14, 1994

Approved November 3, 1994

Members Present

Jim Anderson
John Anderson
Jay Barnosky
Steve Burke
Gary Fritz
Charley Galiger
Paul Mosely
Dick Oswald
Keith Stone
George Swan
George Trishman
Scott Waldie
Al Wind

Others Present

Jerry Burke
Jack Fenton
Walt Perkins
Joe Tezak
Mary Vandenbosch
Bill Doggett
Linda Foy
Mark Simonich
Neil Todd

Introduction

Mark Simonich, Director of the Department of Natural Resources and Conservation (DNRC) opened the meeting by explaining the mission of the Task Force. Simonich emphasized the need to produce quick results.

Membership

Simonich asked whether there were any interests that are not currently represented on the Task Force. John Anderson asked whether the Water Quality Division of the Department of Health and Environmental Sciences (DHES) should be represented. Simonich explained that DHES feels that it would be most appropriate for DHES to supply technical expertise to the Task Force as needed, rather than sitting on the Task Force.

The Task Force agreed that, since Lowell Sauerbier has agreed to continue as president of the Ruby River Water Users Association, he should be invited to participate in the Task Force as his schedule allows.

Simonich discussed the five goals outlined in the "Mission and Membership" statement for the Task Force.

The Task Force discussed the possibility of expanding the mission of the Task Force to address broader watershed issues and potentially a watershed study. The Task Force agreed that the group would consider whether or not to address other issues once

the five original goals were completed.

Ground Rules

Draft ground rules were distributed. The ground rules were adopted with the following additions and revisions:

Addition to #3: Members of the group will not attack each other personally and will show respect for other members.

New # 12: The public shall be invited to all Task Force meetings. Participation by the public shall be limited to a specific time be set aside at the end of the meeting for public discussion. Public notice of meetings shall be given in advance through the news media.

Ground rule #9 was modified to identify the Task Force co-chairs as spokesmen for the Task Force.

George Swan asked whether DNRC would provide funds for outside consultants. Simonich responded that he would prefer to make use of resources available within state and federal government first, but DNRC would pay for consultant services if the Task Force agrees it is necessary.

Appointment of Co-chairs

The Task Force discussed whether or not a facilitator should be brought in to run the meetings. The group agreed that a facilitator was not necessary at this time. The Task Force agreed that George Swan and Paul Mosely would serve as co-chairs.

Project History

Jerry Burke read a letter he had written about the Ruby Valley and the Ruby Reservoir Project. Joe Tezak also shared his memories of the Ruby River before and after the dam. Tezak noted that certain stretches of the river would frequently go dry before the dam was built. Tezak emphasized that the reservoir is beneficial for the fishery. Tezak also discussed the importance of return flows.

Fish Kill

Dick Oswald reported on the fish kill. Oswald explained the information he reported in his September 7, 1994 memorandum regarding the fish kill. Since that time, Oswald has electrofished in the middle section of the fish kill (from the West Canal diversion to the Ruby Canyon diversion). Oswald found 200 brown trout per mile, in comparison with slightly less than 1200 brown trout per mile in 1984. He also found 800 rainbow trout per mile in that stretch. Oswald noted that he believes that 10 - 15,000 is a conservative estimate of the number of fish killed.

Paul Mosely asked about the impact of the sediment on spawning beds. Oswald explained that there is not a lot of spawning activity in the area of the fish kill.

Oswald stated he would like to move rainbow trout that had been washed out of the reservoir from the river back to the reservoir on Wednesday, October 19. Members of the Task Force volunteered to arrange for equipment and volunteers.

DNRC Response

Gary Fritz described the DNRC's response to the fish kill. DNRC has been balancing the need to increase the pool as quickly as possible, while maintaining a minimum flow downstream. Fritz noted that some irrigators had cut back on their diversions in order to maintain instream flows during hot weather in September. The DNRC is evaluating the best way to flush the sediment with minimal impact. There was a brief discussion of ways to deal with the sediment issue.

DHES Response

Mark Simonich relayed his conversation with Steve Pilcher, DHES, regarding their response to the incident. Simonich explained that DHES is in the process of determining what enforcement response is appropriate. He does not know whether enforcement action will be taken against the DNRC, the water users or both. Pilcher would like to negotiate a consent decree that includes some form of mitigation. Simonich said he would encourage DHES to set up a meeting with the water users in the Ruby River valley.

Next Meeting

The next meeting date was set for Thursday, November 3, 1994 at 7:00 p.m. in Sheridan. The group agreed to begin by addressing the issue of minimum pool size. It was agreed that Glen McDonald and Neil Todd would present background information on reservoir operation.

Information Needs

The following information needs were identified:

- Basic water marketing contracts.
- Historic reservoir operation including filling, releasing and carryover storage.
- Most recent dam inspection report.
- Historic information about relationship between elevation, surface area and volume.
- New area-capacity curve.
- Updated information on precipitation and snowpack from the Soil Conservation Service (SCS).

- Information about the feasibility of dredging sediment from the reservoir.
- A map showing the location and amount of diversions (being developed by the SCS).

Minimum Pool Size

There was a brief discussion of the requirements for establishing a minimum pool. The minimum pool required to protect water quality downstream would be different from the minimum pool to support a fishery in the reservoir. Oswald explained that the pool size required would depend on the amount of productive shelf areas in the reservoir at varying levels.

Ruby River Reservoir Task Force

Meeting Agenda

November 3, 1994
7:00 p.m.
Episcopal Hall, Sheridan

7:00 p.m. **Business**

- Approval of minutes
- Approval of agenda
- Announcements

7:15 p.m. **Response to Fish Kill -- Current Status**

- Fish movement -- Dick Oswald
- DHES response -- Gary Fritz
- Sediment flushing -- Glen McDonald

7:35 p.m. **Background Information**

- Financial Statement -- Glen McDonald
- Feasibility of Dredging -- Mary Vandenbosch
- Reservoir Area Profile -- Glen McDonald
- Fishery Needs -- Dick Oswald
- Historic Flows and Reservoir Levels -- Neil Todd & Glen McDonald

8:20 p.m. **Discussion of Minimum Pool Size**

- Criteria
- Identification of options for further evaluation

9:00 p.m. **Date and Agenda for Next Meeting**

9:15 p.m. **Public Discussion**

9:30 p.m. **Adjourn**

Ruby River Reservoir Task Force

Meeting Minutes
November 3, 1994
Approved November 30, 1994

Members Present

Jim Anderson
Jay Barnosky
Steve Burke
Gary Fritz
Charley Galiger
Paul Moseley
Dick Oswald
Keith Stone
George Swan
George Trischman
Scott Waldie
Al Wind

Members Absent

John Anderson

Others Present

Bob Butler
Bill Buyan
Jack Fenton
Linda Foy
Darnell Godfrey
Gwen Godfrey
Tom Harman
Glen McDonald
Doug Smith
Neil Todd
Terrill D. Todd
Mary Vandenbosch
Richard Wolcott
Robin Wolcott
Craig Woodson

The meeting was called to order at 7:00 p.m. by Co-chair George Swan.

Business

The minutes for the October 14, 1994 meeting were approved. The Task Force decided that a mailing list would be established for the minutes and meeting agendas. The mailing list will include water users and others who attend the meetings. The Department of Natural Resources and Conservation (DNRC) will put together a mailing list for review at the next meeting.

Mary Vandenbosch distributed a draft press release. Gary Fritz suggested that a press release be composed at the end of each meeting.

George Swan noted that he had received a letter regarding the mission of the Task Force from Reid Rosenthal who represents several land owners in the Ruby Valley. The letter will be distributed to Task Force members. Swan encouraged Task Force

members to think about the issues to be addressed by the Task Force prior to the meetings and to write down their ideas and share them at the meetings. Swan urged Task Force members to talk to neighbors, water users and others at least once a week to explain what is going on with the Task Force and to get feedback. Swan also urged Task Force members to think more about what they can do rather than what they can't do.

Response to Fish Kill

Fish movement

Dick Oswald reported that 2,775 rainbow trout (primarily one- and three-year-olds) were moved from the Ruby River back into the reservoir on October 19. He estimated that two-thirds to eighty percent of the rainbows that had been washed out of the reservoir were moved back into the reservoir. He concluded that the fish movement went very well. The Task Force agreed that the co-chairs would send a letter to Pat Graham, Director of the Department of Fish, Wildlife and Parks to thank Dick Oswald and his crew for their efforts.

DHES response

Gary Fritz reported that the Department of Health and Environmental Sciences (DHES) was working on getting an attorney to write a complaint. The complaint will be issued to both the DNRC and the Ruby River Water Users Association (RRWUA). These two parties will have to decide who will pay the fine. Once the complaint is written, DHES would like to get together with DNRC and the RRWUA to negotiate a consent decree. Remediation efforts can be applied toward the fine.

Swan announced that he, Al Wind, Scott Waldie and Paul Moseley had met with Bruce Farling (Trout Unlimited) and Tony Jewett and Alan Rollo (Montana Wildlife Federation). The Wildlife Federation agreed to urge DHES not to assess a fine, but to focus on efforts to remedy the situation.

Sediment flushing

Glen McDonald described the current status of DNRC's efforts to develop a plan to flush the sediment that had been washed out of the reservoir and into the river. A question was raised as to whether the sediment could be flushed in the fall. McDonald explained that it would be best to flush the sediment in the spring in order to utilize tributary flows to keep the sediment suspended. Higher flows in the Beaverhead and Jefferson rivers will also help to dilute the sediment if it is flushed that far. Oswald agreed that the best time to flush the sediments is in the spring, when the reservoir is near full or is spilling. Oswald also noted that the fall would be a bad time to flush the sediment because brown trout are spawning.

McDonald explained that the DNRC intends to have a draft plan in January and a final report by February. In developing the plan, the DNRC will need to look at the following factors: historical hydrology and project operation, especially peak runoff, maximum storage, and irrigation diversions; channel hydraulics; and the amount of sediment in the stream. It is necessary to evaluate the channel hydraulics in order to determine what it takes to mobilize the sediment. Chuck Dalby, a DNRC hydrologist who has worked on various channels all over Montana, is developing the plan.

The DNRC will need to consult with the SCS about forecasted runoff, but this information probably won't be available until the end of February. A monitoring plan will be developed to monitor the impact of the flushing on fish to ensure that suspended sediment and dissolved oxygen levels do not reach levels that would be harmful.

The following suggestions and comments were made:

The canals could be opened and closed in sequence.
The canals might be plugged with sediment, delaying irrigation.
It will be difficult to mobilize the sediment in the slow areas of the river where it was initially deposited. Maybe the sediment should be removed mechanically.
The sediment flushing should occur in stages in order to test the effect of different flows on the level of sediment.

Gary Fritz encouraged people to share their ideas about flushing the sediment.

Background Information

Financial statement

Glen McDonald reviewed a financial statement for the project that was distributed to Task Force members.

Dredging costs

Mary Vandenbosch said that she is getting cost estimates for dredging the reservoir from the Bureau of Reclamation. The DNRC estimates that 1,000 acre-feet or 1.6 million cubic yards would have to be removed. Cost estimates will be presented at the next meeting. Charlie Galiger suggested that the cost could be offset by selling the topsoil. George Swan noted that the sediment might be used for reclamation at the Ruby Mine. Gary Fritz stated that he thought it would be difficult to sell 1.6 million cubic yards of sediment. Moseley asked whether raising the dam would be an alternative if dredging is expensive.

Reservoir area profile
Glen McDonald stated that the DNRC is hiring a contractor to develop a new topographic map so that the DNRC can develop a new area-capacity curve.

Fishery needs

Dick Oswald presented information about the amount of water needed to maintain the fishery in the reservoir. Oswald explained that not all of the reservoir is trout habitat. Factors affecting the fishery include temperature, depth of light penetration and oxygen. The food that trout depend on is primarily grown in shallow areas. When the reservoir storage drops, the formerly shallow areas go dry. The new shallow areas were not previously producing food. Therefore, the amount of productive area shrinks when the reservoir level goes down.

Oswald distributed tables and graphs relating reservoir storage levels and surface acreage, and showing the number, type and length of reservoir trout. He noted that it is much more difficult to establish relationships between trout populations and end of season surface acreage for the Ruby Reservoir than it is for the Clark Canyon reservoir. This is because the Ruby Reservoir is not nearly as productive and the fish don't grow as big. In addition, five different strains of fish have been planted in the Ruby Reservoir. Other factors besides reservoir storage may affect the success of planted fish. These include: unhealthy hatchery fish, stress from transportation in hatchery trucks and planting at the wrong time of the year.

Looking at a graph of rainbow trout versus prior year end of season surface acreage, Oswald said there seemed to be two points where fish survival was good. These two points correspond to 6,500 acre-feet and 15,000 acre-feet. One option would be to establish an optimum pool of 15,000 acre-feet and a minimum pool of 6,500 acre-feet. Oswald noted that the end of season storage has only been less than 6,500 acre-feet six times since 1960.

Historic Flows and Reservoir Levels
Neil Todd explained how the reservoir is operated. It takes seven months to store water for a five month irrigation season. The reservoir is filled every year. They try to make it spill the first of May because that is when contracted water is called for. They try to have as much "free flow" water as possible between May 1 and September 30. Todd explained that the SCS Reservoir Operating Guide says that water should only be spilled in case of an emergency, but he feels that is not consistent with the contracts between the state and the water users. The water users rely on monitoring inflows more than the Snotel data in determining how to operate the reservoir.

Several Task Force members agreed that the peak demand for water occurs during the first three weeks of May. The demand for water may exceed the capacity of the canals. People at the lower end of the river may not get their water early in the season because it takes time for the return flows to come in.

Todd noted that the demand for water is approximately 600 cfs during this period in May, but releases through the outlet need to be limited to 450 cfs to avoid cavitation. Therefore, it is necessary to spill water in order to meet the demand.

Once the reservoir is done spilling, the outflow depends on demand. They are required to release the amount of the inflow to the reservoir in order to satisfy decreed water rights.

Carryover storage is not a concern.

Discussion of Minimum Pool Size

George Trischman said he was surprised by how high Oswald's numbers were and raised the issue of whether or not we should try to establish an upward trend fishery in the reservoir. Moseley said he felt that there isn't enough data to determine the size of the pool, but he believes the fishery can and will improve over time.

In response to questions, Oswald explained that the quality of reservoir fisheries varies around the state. The Ruby Reservoir will never have the same quality of fishery as Clark Canyon. Fritz asked whether the river fishery or the reservoir fishery was most important. Oswald responded that this is a chicken and egg question, since the river is dependent on the reservoir. However, in terms of economics, the river fishery is more important.

Trischman asked whether the contract would have to be amended if some of the contracted water had to be devoted to a minimum pool. Fritz noted that, in general, there has been more water going down the canals than the sum of contracted water and decreed water rights.

Fritz outlined several criteria to consider in establishing a minimum pool: optimizing the reservoir fishery, maintaining reasonable water quality downstream, providing water for downstream irrigation, optimizing the fishery downstream, and carryover storage. Carryover storage does not appear to be a concern on the Ruby.

Swan noted that when the reservoir hits its lowest level, it starts filling again. It is only at the lowest level for one day. He asked whether the minimum pool could refer to a monthly average. Oswald responded that a monthly average by itself

wouldn't work, because if the reservoir is drawn way down, the damage has already been done. However, he will think about this idea. There could be some kind of variance.

Swan said he had met with two people from Turner Ranches and Ted Turner would be willing to leave his 2,660 acre-feet in the reservoir provided he did not have to pay operation and maintenance fees. Operation and maintenance fees are $1.35 per acre-foot. Swan raised the question of whether or not the environmental community would be willing to pay this fee to protect the fishery.

Next Meeting Date

The next meeting date was set for November 30 at 1:30 p.m. in the Episcopal Hall in Sheridan.

Public Discussion

Terry Todd: The first priority should be to fulfill the contracts or come as close as possible. Don't interfere with the decreed water.

Bill Buyan: The sediment flushing shouldn't take place too early because there will be no place for the water to go. You can't put the water on the fields when the cattle are still feeding. The canals have to be ready-- the ground has to be thawed and the trash has to be cleaned out of the canals.

Neil Todd: The sediment flushing should be accomplished using a staged approach. The flow should be increased gradually to see what happens. Flushing the sediment shifts the problem from the river fishery to the canal users and that should be pointed out to DHES since there is a cost involved.

Other concerns about the sediment flushing:

The sediment could destroy irrigation pumps.
You need to wait until the siphons thaw out.
April 20th is approximately the earliest it could be done.

Oswald outlined a scenario with an optimum pool, a minimum pool and a procedure to make an emergency exception for drought. The optimum pool would be 10,000 acre-feet and 6,500 would be the minimum. A committee could be convened to determine what sort of variance would be made for an emergency, such as a drought. Oswald noted that maintaining a minimum pool is advantageous to the water users, since less sediment would be deposited when the reservoir level is higher.

The meeting was adjourned at 10:15 p.m.

Ruby River Reservoir Task Force
Meeting Agenda

November 30, 1994
1:30 p.m.
Episcopal Hall, Sheridan

1:30 p.m. **Business**

- Approval of minutes
- Approval of agenda
- Announcements
- Letter from Douglas Smith
- Mailing list

1:50 p.m. **Updates**

- Sediment Flushing -- Glen McDonald
- DHES response -- Gary Fritz

2:10 p.m. **Background Information**

- Feasibility of Dredging -- Mary Vandenbosch
- Reservoir Area Profile -- Glen McDonald

2:35 p.m. **Break**

2:40 p.m. **Minimum Pool Size**

- Review of Alternative Minimum Pool Levels in Light of Historic Data -- Larry Dolan
- Determination of Minimum Pool Size

3:35 p.m. **Related Watershed Activities**

- Conservation District Watershed Planning
- Decreed Water Users

3:55 p.m. **Date and Agenda for Next Meeting**

- Information Needs

4:10 p.m. **Public Discussion**

4:30 p.m. **Adjourn**

Ruby River Reservoir Task Force

Meeting Minutes
November 30, 1994
Approved December 16, 1994

Members Present

Jim Anderson
John Anderson
Jay Barnosky
Linda Foy (for Al Wind)
Gary Fritz
Charley Galiger
Paul Moseley
Dick Oswald
Keith Stone
George Swan
George Trischman
Scott Waldie

Members Absent

Steve Burke

Others Present

Harry Armstrong
Mike Barron (NRCS)
Bucky Ballou
Jerry Burke
Bill Buyan
Dan Dallas (USFS)
Bill Doggett
Harry Dunham
Jim Edwards
Doug Elser
Jack Fenton
Ward Jackson
S.W. Hancock
Jack Hutchison
(Ruby Valley C.D.)
Jim Kaatz
George King
Glen McDonald (DNRC)
Annette McLean
Fred Moltich
Dan Novich
Bruce Pearson
Walt Perkins
Joe Peterson
Allen Schallenberger
Doug Smith
Joe Tezak
Terrill D. Todd
Mary Vandenbosch (DNRC)

Business

The meeting was called to order at 1:30 p.m. by co-chair Paul Moseley. The minutes for the November 3, 1994 meeting were approved. Moseley announced that Linda Foy would be taking Al Wind's place at this meeting. The Task Force agreed to modify the agenda to have a presentation from Jack Hutchison of the Ruby Valley Conservation District followed by Jay Barnosky at 2:40.

Moseley read a letter to the Task Force from Douglas Smith. Smith's letter suggested that an additional member be added to the Task Force who has decreed rights but who neither owns nor represents anyone owning contracts with the Ruby River Water

Users Association (RRWUA), the Vigilante Canal Water Users Association or the West Bench Canal Water Users Association. The Task Force agreed to ask Ed Guinnane to become a member of the Task Force. Gary Fritz agreed to contact Mr. Guinanne.

The Department of Natural Resources and Conservation (DNRC) agreed to provide the Task Force with a list of contract holders and officers of the RRWUA and the Vigilante and West Bench canal associations.

Mary Vandenbosch distributed a mailing list for interested persons and asked members to contact her if they know of anyone who should be added. All Ruby River water users below the reservoir (contract holders and decreed water users) will receive an agenda and approved minutes.

Glen McDonald reported on the status of privatization of the two canals.

George Swan mentioned that the Task Force has also received a letter from Reid Rosenthal.

Updates

Sediment Flushing

Glen McDonald reported that the DNRC has completed a survey to estimate the amount of sediment that was washed into the Ruby River from the reservoir. He estimates there is approximately 2,500 cubic yards plus or minus 25 percent.

DHES Response

Gary Fritz stated that the Department of Health and Environmental Sciences (DHES) would like to issue the complaint and a consent decree at the same time. Steve Pilcher (DHES) intends to set up a meeting with the RRWUA and the DNRC on Dec. 12 or Dec. 14.

Background Information

Feasibility of Dredging

Mary Vandenbosch distributed a handout showing the estimated costs of dredging the Ruby Reservoir. The estimated costs of dredging the reservoir range from approximately $7 to $21.5 million, depending on who does the dredging and whether or not the sediment has to be transported away from the reservoir.

Reservoir Area Profile

Glen McDonald reported that the new reservoir area-capacity curve shows that 2,200 acre-feet of capacity have been lost since the

reservoir was constructed. The Task Force asked McDonald to investigate the feasibility of expanding the capacity of the reservoir with additional flashboards.

The Task Force agreed that the chairs should send a letter to Governor Racicot and the director of the Governor's Budget Office asking them to include funding for a study on the feasibility of expanding and rehabilitating the Ruby Reservoir in the budget for the 1996-1997 biennium.

Related Watershed Activities

Ruby Valley Conservation District

Jack Hutchison, Chairman of the Ruby Valley Conservation District, explained the district's plans to seek funding from DHES for watershed planning activities. Hutchison noted that he would like to coordinate with the Task Force and he would like the Task Force to identify was that the Conservation District can help the Task Force. Initially, the District is seeking $50,000 for Phase I which entails completing the mapping of the Ruby River Valley.

The Task Force discussed the possibility of asking the District to allocate funds for mapping of the water rights database and for installation of a stream gaging station. Potential sources of funding for a stream gaging station were discussed. Jay Barnosky said that funding would likely be available from the Headwaters Resource Conservation and Development District.

The Task Force agreed that the chairs should send a letter to the Ruby Valley Conservation District encouraging them to allocate some Phase I funding for mapping the water rights database. The Task Force also agreed to request that the Ruby Valley Conservation District work with the Headwaters Resource Conservation and Development District to identify potential sources of funding for a minimum of at least three gaging stations.

Decreed Water Users

Keith Stone explained that he was talking with other decreed water users about establishing some type of authority or board for decreed water users on the river. Stone noted he would like to hear from people interested in this effort.

Terry Todd asked whether free flow water could take priority over decreed water rights downstream. There was disagreement among members about this issue and the DNRC was asked to research the issue and report back to the Task Force.

Minimum Pool Size

Glen McDonald reviewed information mailed to the Task Force that showed the water yield sacrifice under various minimum pool scenarios. Dick Oswald distributed graphs showing the condition of fish in the Ruby Reservoir. He concluded that the reservoir was capable of maintaining strong healthy fish with a pool of 6,500 acre-feet or greater.

Oswald explained his written proposal for establishing a minimum pool for fisheries maintenance in the Ruby Reservoir. Under this proposal, 10,000 acre-feet would be considered an optimal target pool; 6,500 acre-feet would be a minimum target and there would be a procedure for variance under extreme conditions. A predetermined team would determine how much additional water could be drafted down to a final minimum of 2,500 to 3,000 acre-feet.

Swan explained that Turner Enterprises would be willing to lease their contracted amount of 2,634 acre-feet. Someone would have to pay the operation and maintenance fees and the small remaining principal. There was a discussion of how to pay these costs. Jay Barnoski and Charley Galiger indicated they would prefer to spread these costs out over the other contract holders and let the water users be responsible for leasing the water for the minimum pool. The DNRC was asked to draw up a lease for review by attorneys for the RRWUA and Turner Enterprises. This proposal will be presented to the River Board.

The Task Force agreed that the plan for maintaining a minimum pool should be tentative until other aspects of the mission of the Task Force have been addressed. The following tentative plan was agreed to:

> The Department of Fish, Wildlife and Parks (DFWP) considers 10,000 acre-feet to be the optimal pool for maintaining a reservoir fishery. If the reservoir level drops to 7,500 acre-feet, the RRWUA, the DNRC and the DFWP will meet to discuss future operation of the reservoir and to see what accommodations need to be made. A pool of 2,634 acre-feet is the absolute minimum pool.

Date and Time for Next Meeting

The next meeting was set for Friday, December 16, 1994 at 1:30 p.m.

Ruby River Reservoir Task Force
Meeting Agenda

December 16, 1994
1:30 p.m.
Episcopal Hall, Sheridan

1:30 p.m. **Business**

- Approval of minutes
- Approval of agenda
- Announcements

1:45 p.m. **Update**

- DHES response -- Gary Fritz

1:50 p.m. **Background Information**

- Feasibility of expanding reservoir capacity with flashboards -- Glen McDonald
- Historic project operation and flows -- Larry Dolan & Mel McBeath

2:30 p.m. **Options for measuring devices -- Larry Dolan & Dick Oswald**

3:00 p.m. **Break**

3:05 p.m. **Public Discussion**

3:15 p.m. **Dewatering Prevention Plan**

- Instream flow needs for fishery -- Dick Oswald
- Discussion of strengths and weaknesses of current dewatering plan

4:00 p.m. **Date and Agenda for Next Meeting**

- Information Needs

4:15 p.m. **Public Discussion**

4:30 p.m. **Adjourn**

Ruby River Reservoir Task Force

Meeting Minutes
December 16, 1994
Approved January 6, 1995

Members Present

Jim Anderson
John Anderson
Jay Barnosky
Steve Burke
Gary Fritz
Charley Galiger
Ed Guinnane
Dick Oswald
Keith Stone
George Swan
George Trischman
Scott Waldie
Al Wind

Members Absent

Paul Moseley

Others Present

Harry Armstrong
Bob Butler
Cal Creek Ranch
Bill Doggett
Larry Dolan (DNRC)
Doug Elser
Jack Fenton
Linda Foy (Lewis & Clark TU)
Les Gilman
Harold Kelly
Mel McBeath
Glen McDonald (DNRC)
Walt Perkins
Lowell Sauerbier
Doug Smith
Mike Stender
Terrill D. Todd
Mary Vandenbosch (DNRC)
Duane Vargas
Steve Wood

Business

The meeting was called to order at 1:30 p.m. by Co-chair George Swan. The minutes for November 30, 1994 were approved. Swan requested that the agenda be revised so that Bill Doggett could provide information to the Task Force about his interviews with Soil Conservation Service Supervisors in different areas.

Update on DHES actions

Gary Fritz and George Swan updated the task force on a meeting held December 15, 1994 with Steve Pilcher and Abe Horpestad from the Department of Health and Environmental Sciences (DHES). Fritz explained that DHES had decided to issue a complaint and a consent decree at the same time. The complaint would acknowledge the violation and indicate a penalty. Although the complaint could potentially cover multiple days and multiple violations, they are looking at issuing a complaint for a one day violation.

The maximum penalty for a one day violation is $25,000.

If all three parties agree (DHES, the Department of Natural Resources and Conservation, and the Ruby River Water Users Association), both the consent decree and the complaint will go to a local judge. The judge is likely to accept what the parties have agreed to. If an agreement cannot be reached, DHES would file a lawsuit in the local district court.

The consent decree would indicate what actions the owner and the operator of the dam will take to come into compliance with the statutes and would address other issues. DHES outlined seven issues that should be addressed in the consent decree:

1) an absolute provision for a minimum pool;
2) a plan for operation of the reservoir;
3) provision for flushing the sediment out of the river;
4) dewatering prevention plan;
5) stream gages;
6) restoration of fish in the reservoir; and
7) a penalty.

Initially Pilcher wanted to assess a penalty in addition to any money spent to address the first six items. Fritz and Swan stated that Pilcher may have been convinced not to assess a penalty that would only go into the general fund. There will be another meeting after Pilcher puts these items in writing.

Terry Todd stated that the cost of maintaining the minimum pool, as well as the cost to the water users of cleaning the sediment out of their ditches, should be applied toward the penalty.

Fritz explained that DHES would distinguish between costs associated with coming into compliance and enhancement costs. Costs of coming into compliance (such as flushing the sediments) could not be applied toward the penalty. However, he argued that the cost of maintaining a minimum pool greater than the amount needed for water quality (300-500 acre-feet) should count toward the penalty. He agreed that it is important to track all costs, including the costs for coming into compliance.

Swan requested that people give their input on this matter to himself, Gary Fritz or Lowell Sauerbier. Swan reiterated that the water users would not sign an agreement that required them to pay a fine that did not go toward remediation.

Background Information

Feasibility of Expanding Reservoir Capacity with Flashboards
Glen McDonald reported that the Department of Natural Resources and Conservation (DNRC) had begun looking at the possibility of expanding reservoir capacity with additional flashboards.

McDonald noted that spillway capacity is a concern. Adding one more foot of flashboards would double the flood that would be passed over the spillway in the event of failure. One more foot of flashboards would increase the reservoir capacity by 1,000 acre-feet. McDonald said that the DNRC needed to do more analysis before drawing conclusions.

McDonald reiterated that the reservoir had lost 2,200 acre-feet of storage capacity since construction. This amounts to a loss of about one-tenth of one percent per year or six percent of the total capacity at the time of construction. This sedimentation rate is one of the lowest for state-owned water projects in Montana.

Historic Project Operation and Flows

Larry Dolan went over a handout that was distributed to the Task Force -- *Ruby River and Reservoir Summary (1980--1994)*. Fritz said that the DNRC is seeking feedback from people regarding the assumptions used. Fritz explained that stored water is not in the priority system. Natural flow and other water diverted down the canals in excess of water contracted for has a use right associated with it that would have a priority date of 1936.

Ed Guinnane and Jay Barnosky pointed out that the numbers presented do not take into consideration return flows. Swan stated that stream gages are needed in order to know what the flows are. Trischman said that stream gages are needed below the Silver Springs bridge and measuring devices may be needed on the ditches.

Fritz said that the summary shows that most of the time there is a lot of water being diverted down the canals with a 1936 priority date when senior water rights are not being satisfied. The amount of the reservoir inflow is not being sent down the river past the diversion for the two canals. He asked whether or not there was a demand for that water.

In general, water shortages occur lower on the river in the spring and closer to the dam in the fall. Anderson's have the first water right below the canal and they can't satisfy their water right in the fall. The Stanley Ditch could dry the river up if they took their full right.

Ed Guinnane suggested that it would work better to irrigate early when the reservoir is filling; then there would be return flows earlier in the season. Keith Stone and Charlie Galiger said that it is hard to get people to irrigate that early because cattle are still on the fields.

Swan concluded that there was more water released in some months than in others and this indicated that the damtender was doing his job.

Mel McBeath said that the summary presented by Dolan was a good picture given the numbers that were available, but more numbers are needed. For example, there are no records of what is actually diverted for exchange contracts. The figures for reservoir inflow, outflow and reservoir contents are accurate, plus or minus five percent.

McBeath explained that people with canal use contracts for the Vigilante and West Bench canals were given the option of purchasing natural flow contracts for up to 50 percent of the amount of their stored water contracts. He suggested that the natural flow contracts are more likely to be satisfied in both May and June. In addition to natural flow water, McBeath explained that typically the board of the Ruby River Water Users Association (RRWUA) declares that free water is available when water is flowing over the spillway. The board usually declares free water is available until approximately the 1st of July.

Options for Stream Gaging Devices

Dick Oswald stated that he had spoken with Liter Spence (Department of Fish, Wildlife and Parks, DFWP) who operates a cost-share program with the United States Geological Survey (USGS) about funding for stream gaging stations. The funding would depend on what the Legislature does with DFWP's requested budget and would not be available until July 1995. Assuming he gets the same amount of money he has in the past, DFWP could probably pay for installation and operation of one real-time gaging station or installation of two stations.

The state's half of the cost of installation of a real-time gage would amount to approximately $12,500 -- $13,000 per station. In contrast, the state's share of installing the old standby gage is $2,000-$3000. The state's share of operating the gages has been about $4,100 per year.

McBeath estimated that it would cost $3,000 to $4,000 for installation plus $200 per trip for 7 or 8 visits per year for him to install and monitor a standard gage.

Oswald asked whether or not the reservoir pool measurement capability is adequate or if that should be updated. Glen McDonald said he would ask Neil Todd whether the elevational pins are adequate. Swan requested that the answer to this question be provided to the Task Force.

Larry Dolan distributed and explained some information about different types of stream gages.

Swan asked about the possibility of using a combination of different types of gages. He suggested that a subcommittee be formed to investigate the locations and types of gages.

Report from Bill Doggett

Bill Doggett gave a report on his interviews with people who had installed monitoring stations on Nevada Creek, the Smith River and Godfrey Creek. Doggett explained that ranchers were apprehensive about government involvement and the biggest mistake that was made was hurrying people too much. Overall, however, the solution has resulted when government has been involved because you can't get these things done without government involvement. Doggett also stated that, if DHES fined this community, it would be more detrimental than anything that has happened and it would be the end of this cooperative process.

John Anderson noted that having state funds passed through to the conservation districts works well because neighbors sit on the conservation district board.

Dewatering Prevention Plan

Dick Oswald described the wetted perimeter method used to develop the instream flow needs for the fishery in the Ruby River. Using this method, a minimum flow and an optimum flow are identified. For the lower Ruby (below the dam), the minimum flow is 25 cfs and the optimum flow is 40 cfs. Swan and Oswald agreed that if there was enough water in the river for fish, there should also be enough water for irrigators. There was general agreement that maintaining a minimum flow of 25 cfs was not unreasonable. There was general agreement that keeping fish alive would be a priority.

Oswald said that the targeted staff gage heights in the dewatering plan need to be evaluated and updated. The first step should be to determine the flow rate corresponding to the targeted staff gage heights when the dewatering plan was written. Oswald advocated early soaking of ditches.

Swan stated that the major problem with the dewatering plan is the lack of authority to implement the plan. Somebody has to have the authority to get people to cut back on their water rights. Swan suggested that the water rights holders could develop a contractual arrangement which would ensure that as much water as possible would be supplied to all water rights holders, but when push comes to shove, the priority dates would be enforced.

There was a discussion about putting measuring devices on all of the ditches.

Jim Anderson suggested that a communication network was needed. For example, on the decreed water users committee, each member of the committee is responsible for a certain section of the river.

Swan suggested expanding the RRWUA to administer the river. Mel McBeath stated that the key to making this idea work would be convincing all water users in the Ruby valley who are not members of the RRWUA to join the association. He also noted that the articles of incorporation are very specific and that the DNRC would have to approve any changes. McBeath said that the RRWUA would be a convenient mechanism since the dam is already administering the river. Jim Anderson pointed out that everyone would have to sign a voluntary agreement in order for this to work.

Bill Doggett suggested giving the organization of decreed water users that Keith Stone created a chance to have input. Stone said the decreed water users would like time on the next agenda to present their views.

The group discussed getting legal advice from Russ McElyea, Don MacIntyre (DNRC) and Stan Bradshaw at the next meeting.

Guinnane suggested irrigating more early in the season and trading water.

Date and Time for Next Meeting

The next meeting was set for January 6, 1995 at 1:30 p.m. in the Episcopal Hall in Sheridan. The Task Force agreed to discuss the draft minimum pool policy at the next meeting.

The meeting was adjourned at 5:55 p.m.

Ruby River Reservoir Task Force
Meeting Agenda

January 6, 1995
1:30 p.m.
Episcopal Hall, Sheridan

1:30 p.m.	**Business** o Approval of minutes o Approval of agenda o Announcements o Letters o Appointment of stream gaging subcommittee
1:50 p.m.	**DNRC Portable Irrigation Diversion Structure Program -- Gary Fritz**
2:00 p.m.	**DHES complaint**
2:20 p.m.	**Discussion of Draft Tentative Plan for Maintaining a Minimum Pool in the Ruby River Reservoir**
2:35 p.m.	**Break**
2:40 p.m.	**Public Discussion**
2:50 p.m.	**Equitable Distribution of Water on the Musselshell River -- Bob Goffena (tentative)**
3:10 p.m.	**Measuring Devices (tentative)**
3:25 p.m.	**Report from Decreed Water Users**
3:45 p.m.	**Discussion of Dewatering Prevention Plan**
4:30 p.m.	**Date and Agenda for Next Meeting** o Information Needs
4:45 p.m.	**Public Discussion**
5:00 p.m.	**Adjourn**

Ruby River Reservoir Task Force

Meeting Minutes
January 6, 1995
Approved January 30, 1995

Members Present

Jim Anderson
John Anderson
Jay Barnosky
Steve Burke
Gary Fritz
Ed Guinnane
Paul Moseley
Dick Oswald
Keith Stone
George Swan
George Trischman
Scott Waldie
Al Wind

Members Absent

Charlie Galiger

Others Present

Dave Dixon (Snowcrest)
Jim Edwards
Jack Fenton
John Funk
Marvin Hansen
Rosabelle Maloney (Stimson)
Mark Mehring
Joe M. Metully
Walt Perkins
Bruce Peterson
Neil Peterson
Lowell Sauerbier
Steve Stender (Ruby Management Corp.)
Bill Tate
Dick Todd
Terrill D. Todd
Mary Vandenbosch (DNRC)

Business

The meeting was called to order at 1:40 p.m. by Co-chair Paul Moseley. The minutes for the December 16, 1994 meeting were approved. The agenda was revised so that public discussion would be held at the end of the meeting.

Swan announced that he had received the following letters:

- Letters from Governor Racicot and David Lewis (director of the Governor's budget office) in response to the request from the Task Force to include funding in the budget for a study on the feasibility of expansion and rehabilitation of the Ruby River Reservoir.

- Letter regarding the Big Hole ranchers' appeal of the grant of instream water reservations to the Department

of Fish, Wildlife and Parks.

- Memorandum from Judie Tilman (Headwaters RC&D) regarding possible funding sources for stream gages.
- Letter from Scott Waldie suggesting an innovative solution to the Ruby Reservoir problem.

A subcommittee was appointed to identify potential sites for stream gages and report back to the Task Force. Members of the subcommittee are: Larry Dolan (DNRC), Neil Todd, Jay Barnosky, and Lowell Sauerbier. The subcommittee will report to the Task Force in 30 days.

DNRC Portable Irrigation Diversion Structure Program

Gary Fritz explained that the Department of Natural Resources and Conservation (DNRC) received a grant from the Bureau of Reclamation to construct portable irrigation diversion structures for use by irrigators during periods of low streamflow. Anybody who is interested can contact Jesse Aber at (406) 444-6628 or the Roger Staley at the Ruby Valley Conservation District.

DHES Complaint

George Swan explained that the DNRC and the Ruby River Water Users Association (RRWUA) were in the process of drafting a response to a letter from Steve Pilcher regarding the water quality violation. Swan and Fritz said the letter would show the value of actions that are going to be taken by the RRWUA and the DNRC and that the value of these actions would exceed any fine.

Discussion of Draft Tentative Plan for Maintaining a Minimum Pool

The Task Force reviewed a draft tentative plan for maintaining a minimum pool (dated December 13, 1994). The Task Force agreed to make the following changes to the draft plan:

- Change 2,634 to 2,600 acre-feet.
- Delete the last paragraph and replace it with: "The River Board and the Department will enter into an agreement that requires the River Board to maintain the minimum pool in the reservoir at 2,600 acre-feet. The Ruby River Water Users Association will determine how to maintain a minimum pool using whatever means necessary."

John and Jim Anderson reminded members that the RRWUA will have to vote on this proposal.

Equitable Distribution of Water on the Musselshell River

Bob Goffena and Bill Bergin from the Deadman's Basin Association described their efforts to address problems with delivering water on the Musselshell River. They have had serious problems with delivering water to people on the end of the river. They developed a river management plan which includes the following components:

- installing measuring devices;
- limiting the amount of water that can be used per acre of irrigated land;
- scheduling of irrigation;
- improving efficiency; and
- ordering water.

They also have stream gaging stations all the way down the river and the ditch rider publishes flow rates in the newspaper every week.

All contract holders are required to install measuring devices. Bergin and Goffena stated that measuring devices were key to resolving their problems and they emphasized that everyone wants to be fair; if they know how much water they're using they won't take more than their share. Bergin also emphasized the benefits of improving efficiency with gated pipe and sprinklers.

Report from Decreed Water Users

Terry Todd presented a plan that was developed by the decreed water users. Todd stated that he thought water users on the Ruby River, like water users on the Musselshell River, could take care of their own problems. Todd explained that the plan developed by the decreed water users was mean to be a supplement to the 1988 Dewatering Prevention Plan.

The Task Force discussed a cooperative effort to install stream gaging stations using recorders provided by DNRC and labor donated by ranchers. The Task Force agreed that it was important to have records of stream flows.

Todd indicated that the decreed water users did not want to set target streamflows in the plan, since they don't have records of what flows have been in the past. They feel minimum flows must be studied over a five to ten year period before adequate flow rates are established.

Al Wind said that he though it was important to establish minimum flow rates as part of the consent decree with the Department of Health and Environmental Sciences. He thought the Task Force had already agreed to maintain a flow of 25 cfs.

The Task Force encouraged the decreed water users to identify preliminary minimum flow rates for dewatered reaches. These rates would not be set in stone; a mechanism could be established for reviewing these rates in light of actual streamflow data. Jay Barnosky raised the question of whether the flow rates would apply year round or just during the irrigation season.

Trischman stated that he felt measuring devices were needed.

Neil Todd suggested that the percentage that water users would be asked to cut back on their diversions be based on priority dates. For example, someone with an 1865 priority date would cut back 5 percent, while someone with an 1890 date would cut back 10 percent.

Fritz asked what would happen if an irrigator did not follow the plan. Todd responded that he felt most irrigators would respond to peer pressure. Guinnane suggested publishing the "Water Hog of the Week" in the newspaper.

There was general agreement that cutting back on upstream diversions was a better way of solving dewatering problems than simply letting more water out of the reservoir.

John Anderson explained that the people on the first five ditches had talked about starting to irrigate around April 15 and staggering irrigation. If a few people could start irrigating early, they would be done by the time people needed the water lower on the river.

Todd explained that the plan prepared by the decreed water users was a working document and that it would continue to change. He will talk with the other water users about setting preliminary minimum flow rates and report back to the Task Force at the next meeting.

Next Meeting Date and Time

The next meeting was set for January 30, 1995 at 7:00 p.m. in the Episcopal Hall in Sheridan. Al Wind said that he would be gone for the next two months and that he had not yet found someone from the Lewis and Clark chapter of Trout Unlimited to replace him but that he would continue to try to find a replacement. Gary Fritz raised the possibility that someone from the George Grant chapter could be invited to participate.

The meeting was adjourned at 5:45 p.m.

Ruby River Reservoir Task Force
Meeting Agenda

January 30, 1995
7:00 p.m.
Episcopal Hall, Sheridan

7:00 p.m.	**Business**
	○ **Approval of minutes**
	○ **Approval of agenda**
	○ **Announcements**
7:10 p.m.	**DHES complaint -- George Swan & Gary Fritz**
7:20 p.m.	**Measuring Devices -- Roger Staley**
7:50 p.m.	**Minimum Pool**
	○ **Approval of tentative plan**
	○ **Status of contract transfer**
8:00 p.m.	**Options for Managing Sediment in the Ruby River -- Chuck Dalby**
8:45 p.m.	**Break**
8:50 p.m.	**Proposed Supplement to Dewatering Plan -- Decreed Water Users**
9:10 p.m.	**Discussion of Dewatering Prevention Plan**
9:30 p.m.	**Reservoir Operation Guidelines**
9:45 p.m.	**Date and Agenda for Next Meeting**
9:50 p.m.	**Public Discussion**
10:00 p.m.	**Adjourn**

Ruby River Reservoir Task Force

Meeting Minutes
January 30, 1995
Approved February 22, 1995

Members Present

Jim Anderson
John Anderson
Bucky Ballou
Jay Barnosky
Steve Burke
Gary Fritz
Charlie Galiger
Ed Guinnane
Paul Moseley
Dick Oswald
Keith Stone
George Swan
George Trischman
Scott Waldie

Others Present

Mike Barron (NRCS)
Sofus Christensen
Chuck Dalby (DNRC)
Dan Doornhos
John Funk
Jack Hutchison
George King
David A. Maddison
Rich Moy (DNRC)
Reid Rosenthal
Roger Staley (NRCS)
Lowell Sauerbier
Dick Todd
Terrill D. Todd
Mary Vandenbosch (DNRC)

Business

The meeting was called to order at 7:15 p.m. by Co-chair George Swan. The minutes for the January 6, 1995 meeting were approved. Swan introduced Bucky Ballou, from the Lewis & Clark chapter of Trout Unlimited. Bucky will be replacing Al Wind while he is out of town.

DHES Complaint

Mary Vandenbosch distributed copies of a letter from the Department of Natural Resources & Conservation (DNRC) and the Ruby River Water Users Association (RRWUA) to Steve Pilcher of the Department of Health and Environmental Sciences (DHES). The letter outlines actions to be taken by the DNRC and the RRWUA in order to reach a settlement of the water quality violation. The letter also proposes supplemental environmental projects to be completed in lieu of a cash penalty.

Steve Pilcher agreed to recommend that the letter form the basis for a consent decree. Bob Robinson, director of the DHES, has tentatively agreed to move forward with a consent decree that outlines the activities in the letter and that does not include a

cash penalty. Swan explained that the consent decree would be signed by all parties and would be submitted to a judge.

Referring to the letter, Moseley asked how the term "emergency" would be defined in the sentence that says the DNRC has the authority to prescribe operation of the reservoir in an emergency. Gary Fritz said that the DNRC believes it has the authority to prescribe operation of the reservoir in situations where operation is not routine.

Dick Oswald said that he had been asked what actions would be sufficient for fish restoration. Oswald explained that he would be satisfied if the following actions were taken: maintaining a minimum pool, maintaining a minimum flow, installing stream gages and putting measuring devices on ditches. Oswald added that he is not interested in addressing issues not related to the work of the Task Force through the consent decree (e.g., providing fishing access).

Measuring Devices

Roger Staley presented photographs and information on the costs of installing headgates and measuring devices. The average cost is about $10,000 to $15,000.

Update: Ruby Valley Conservation District Planning Activities

Mike Barron explained that the Ruby Valley Conservation District had requested $50,000 from the Water Quality Division of DHES. He said they expect to hear soon if they will receive the money; it looks like they have a good chance.

George Swan and Jack Hutchison went to the state Natural Resources Conservation Service Office in Bozeman to secure technical support. They have been assured that this project will rank in the top five as far as receiving assistance. In addition, the Ruby Valley Conservation District plan has been presented to the Headwaters Resource Conservation and Development District and a committee that is overseeing an economic diversification program for the Ruby Valley. As a result, there are more funding options available.

Barron emphasized that it will be easier to get funding for a package of measuring devices as part of a plan, rather than trying to get funding for one measuring device at a time. John Anderson asked whether it would be better to encourage people to hold off on measuring devices and go for a bigger package. Barron responded that they would be further ahead down the road if they took this approach.

Anderson also asked whether the Ruby River Reservoir Task Force could become the watershed planning committee. Jack Hutchison

responded that they already have the beginnings of an advisory committee composed of: George Swan, Mike Barron, Mark Petroni and Warren Kellog. They don't want to have a group that is too big. He feels that it doesn't make sense to have a steering committee until they obtain funding. Mike Barron said that they don't want to set up a steering committee at this time because priorities shift. Both Hutchison and Barron emphasized that it would be important for the Task Force to provide input on priorities.

John Anderson asked whether it would be possible to get funding for installation of measuring devices this season. Barron said the earliest that funding would be available is this time next year. Gary Fritz asked what the Task Force can do to help. Barron and Hutchison said they hoped that the Task Force would help write the proposal.

Minimum Pool

The Task Force approved the tentative plan for maintaining a minimum pool that was revised at the January 6 meeting and mailed to members.

Gary Fritz explained that the DNRC had received a letter from Russ McElyea, attorney for the water users, requesting that the DNRC forgive the principal on Turner's contract. Fritz said that this possibility had not been discussed previously at Task Force meetings. Fritz said he did not know of any provision that would allow the DNRC to forgive the principal, since that money goes into the Renewable Resource Development account. Fritz said that the DNRC has already put considerable money and time into addressing the water quality violation and the DNRC did not intend to forgive the principal.

Don McIntyre, the DNRC's attorney, will work with Russ McElyea to work out the necessary legal arrangements with Turner Enterprises.

Options for Managing Sediment in the Ruby River

Chuck Dalby reviewed a handout that outlines the DNRC's plan for controlled flushing of the sediment in the Ruby River. Dalby emphasized the need for cooperation in implementing the plan.

Dalby emphasized that the plan could not be implemented until water can be diverted into the canals and onto the fields. Swan noted that there would still be ice in the canals in March. Galiger raised a concern about cattle still being on the fields at that time. Galiger asked if the sediment would harm sprinklers. Ed Guinnane and a member of the audience said that they had irrigated with the silty water with no problems.

Dalby asked that a team of people be assembled to deal with the details of implementing the sediment management plan. The team should include people associated with operation of the reservoir, the Vigilante and West Bench canals and the ditches above the Coy Brown bridge. Lowell Sauerbier agreed to identify a group of people. Dick Oswald should also be involved.

Proposed Supplement to Dewatering Plan -- Decreed Water Users

Keith Stone reported that the decreed water users had revised their plan. The primary change is on page two. The decreed water users feel that there is insufficient data to establish definite minimum flows and that minimum flows must be studied over a period of five to ten years before adequate flow rates are established.

The decreed water users plan to meet with the RRWUA and Mel McBeath within the next ten days to work on expanding the RRWUA to include decreed water users.

Dewatering Prevention Plan

The Task Force discussed establishing a minimum flow as part of the dewatering prevention plan. Swan maintained that there is no way of knowing what the minimum flow should be without data from stream gaging stations. He also raised the question of where the minimum flow would apply -- would it apply everywhere or just certain reaches? Swan also said that he thought that 25 cfs is too high, since the minimum flow in the Beaverhead is 25 cfs and the Beaverhead is a bigger river.

Oswald explained that the 25 cfs minimum flow was developed using a proven methodology -- the wetted perimeter method. He also said that 25 cfs is not the minimum flow to support aquatic habitat in the Beaverhead. That number would be closer to 150 to 160 cfs. Oswald said that 25 cfs should be the minimum at the low point in the stream. The low point would be likely to move. Oswald also said that he had not seen a point in the system where the flow could go below 20 cfs and still supply adequate water for irrigators.

Paul Moseley suggested that a non-enforceable minimum flow of 25 cfs be declared in the plan. Flows would be monitored over the next five years to determine whether that number was appropriate.

Swan and others expressed a concern that water would be wasted if a minimum flow of 25 cfs was maintained at all points on the river.

Gary Fritz pointed out that, on the one hand, water users have said they want to maintain fish habitat. Dick Oswald says that a minimum flow of 25 cfs is needed in order to do that. On the

other hand, the irrigators seem to be saying that they want to have stream gaging stations primarily to ensure adequate water for irrigation, hoping that this will also ensure adequate flows for fish.

Fritz asked what happens if we buy off on this plan and the flow drops to 5 cfs and Dick Oswald says that 20 cfs is needed. Keith Stone and George Trischman said that things would not get to that point, but if it did they should bring their checkbook.

Ed Guinnane said that, if they were aware of the problem, people would be willing to cut back on their diversions. He suggested setting up a committee for five years. If a fisher says that there is not enough water in the stream, then someone could let the ranchers know. Stone pointed out that communication has been the biggest problem and the decreed water users' plan solves that problem.

Several people said that, if there is plenty of water for irrigation, then there will be plenty of water for fish.

John Anderson raised a concern that DHES would not be satisfied unless a minimum flow was identified, since this was discussed in the letter. Anderson suggested inserting a statement in the plan that the Department of Fish, Wildlife, and Parks (DFWP) has identified 25 cfs as the minimum flow to maintain aquatic habitat in the Ruby River. A flow of 25 cfs would be a goal to strive for. Waldie suggested taking an approach similar to the minimum pool plan, where alarms go off when a certain level is reached.

Moseley made a motion, seconded by Oswald, that a statement be included in the plan that DFWP has identified 25 cfs as the minimum flow for aquatic habitat. A consensus was not reached on this issue.

Fritz asked if, instead of setting a number, Dick Oswald could tell the irrigators when the water is too low. He asked what irrigators would be willing to do in this case. Oswald explained that he would bring a flow meter with him and that he would still be using a number to guide his recommendation.

Reid Rosenthal suggested that the group first agree on the steps that need to be taken in order to identify a number. First, the low flow points should be identified. Second, Dick Oswald should identify the minimum flow for each area. Finally, a plan can be developed for maintaining the flow.

John Anderson made a motion that the chairman appoint a subcommittee to deal with this issue. No action was taken on this motion.

Date and Time for Next Meeting

The next meeting was set for February 22, 1995 at 7 p.m.

Ruby River Reservoir Task Force
Meeting Agenda

February 22, 1995
7:00 p.m.
Episcopal Hall, Sheridan

7:00 p.m.	**Business** o **Approval of minutes** o **Approval of agenda** o **Announcements** o **Appointment of subcommittee for demonstration project**
7:10 p.m.	**Consent Decree -- Gary Fritz/Lowell Sauerbier**
7:20 p.m.	**Report from Subcommittee on Stream Gages -- Neil Todd**
7:35 p.m.	**Update on Sediment Management Plan -- Chuck Dalby**
8:05 p.m.	**Break**
8:10 p.m.	**Discussion of Dewatering Prevention Plan**
8:45 p.m.	**Break**
8:50 p.m.	**Reservoir Operation Guidelines**
9:20 p.m.	**Date and Agenda for Next Meeting**
9:25 p.m.	**Public Discussion**
9:30 p.m.	**Adjourn**

Ruby River Reservoir Task Force

Meeting Minutes
February 22, 1995
Approved: March 16, 1995

Members Present

Jim Anderson
John Anderson
Bucky Ballou
Charlie Galiger
Ed Guinnane
Paul Moseley
Keith Stone
George Trischman
Scott Waldie

Members Absent

Jay Barnosky
Steve Burke
Gary Fritz
Dick Oswald
George Swan

Others Present

Sofus Christensen
Chuck Dalby (DNRC)
Jack Fenton
Ron Ratcliffe
Doug Smith
Lowell Sauerbier
Dick Todd
Terrill D. Todd
Mary Vandenbosch (DNRC)

Business

The meeting was called to order at 7:15 p.m. by Co-chair Paul Moseley. The minutes for the January 30, 1995 meeting were approved.

Moseley read a letter from Scott Reynolds of the George Grant Chapter of Trout Unlimited to Mark Simonich, director of the Department of Natural Resources and Conservation (DNRC). Moseley asked whether it was necessary to issue a press release that explains the timetable for accomplishing the mission of the Task Force. Mary Vandenbosch explained that a press release had already been sent out. Vandenbosch distributed a letter from Mark Simonich that was written in response to the letter from Scott Reynolds.

Consent Decree

This item was postponed until the next meeting.

Update on Sediment Management Plan

Chuck Dalby went over a handout outlining DNRC's current plans

for controlled flushing of the sediment that was deposited in the Ruby River below the dam. Dalby explained that in order to allow enough time for controlled flushing of the sediment, it would be necessary to begin irrigation approximately two weeks earlier than usual or to postpone spilling of the dam.

Several people asked whether the sediment samples that were collected had been found to be contaminated. Dalby explained that the results of the sediment analysis would be available by March 1. Terry Todd stated that if the sediment was found to contain contaminants at toxic levels, then it would be a mistake to flush the sediment onto the fields.

Dewatering Prevention Plan

Paul Moseley stated that he would be willing to wait until streamflow records were available after monitoring for three to five years before establishing a target flow number. John Anderson said that he had called Steve Pilcher and he agreed that it would be difficult to establish a number (for a minimum flow rate in the Ruby River) and that he would be satisfied if the Task Force was working toward a number. The fact that the Task Force is working toward a number would be included in the consent decree.

Lowell Sauerbier said that numbers in the dewatering plan should be stated in miner's inches instead of cubic feet per second (cfs) because the decrees are in miner's inches and very few people use cfs. Scott Waldie suggested using miner's inches and putting the equivalent rate in cfs in parentheses or vice versa.

Paul Moseley asked who would provide staff gage readings as discussed on page 7 of the 1988 Plan to Avoid Dewatering of the Ruby River Project. Terry Todd said he would monitor Phipps Bridge. Otherwise, members agreed that the observers could remain the same and that staff gages should be monitored at least once a day when the water is low. Vandenbosch agreed to update the table on page 7 to provide a current DNRC contact.

Vandenbosch asked what would happen if the river is low and in danger of becoming dewatered. How would the dewatering plan go into effect? Terry Todd explained that the decreed water users have established a committee with one member for every five ditches. There is also a contact person for each ditch. If flows are too low, the decreed water users plan calls for cutting back on the two diversions upstream. The damtender will notify the contact person at the five-ditch level and that person will notify the appropriate contact person on the ditch. The contact person for the affected ditch is responsible for notifying other people on the ditch that their diversion needs to be cut back. If the irrigators are not available, the contact person can go ahead and cut back diversions.

Todd also explained that the decreed water users had met with Mel McBeath and three members of the board of the Ruby River Water Users Association (RRWUA) to explore the possibility of the decreed water users joining the RRWUA. Todd explained that most decreed water users do not want to join the RRWUA because they believe the DNRC would have more power over them. Todd said that the decreed water users were in the process of trying to come to an agreement to assess a fee based on the number of miner's inches they have. The fee would pay for the following costs: a ditchrider, accounting, services provided by the damtender, and monitoring gaging stations.

Report from Subcommittee on Stream Gages

Lowell Sauerbier explained that the subcommittee had identified the following sites for stream gages: Alder Bridge, Harrington Bridge and Wheatley Bridge. If funding is available, two additional gages should be installed at Seylor Bridge and Silver Springs Bridge. Scott Waldie reported that Jay Barnosky had been looking into obtaining funding for installation of stream gages and that Barnosky was optimistic about getting some funding.

The Task Force decided to discuss who will monitor the gages and when they will be installed at the next meeting.

Reservoir Operating Guidelines

Several members stated that they felt the dam was operated as it should be and that the operating guidelines should reflect the current operation of the reservoir. Several members also said that the reservoir operations guide prepared by the Soil Conservation Service was not useful and that if it were followed, the reservoir would not fill. Some members noted that the dam was not built for flood control. Terry Todd stated that if storage space was allocated for flood control, then the state and RRWUA would be breaking its contracts. Todd also added that the best way to provide flood control would be to irrigate early in the upper part of the river below the dam if the dam is going to spill.

A subcommittee composed of Neil Todd, John Anderson, Larry Dolan and Lowell Sauerbier was appointed to draft reservoir operating guidelines and report back to the Task Force at its next meeting.

Date and Time for Next Meeting

The next meeting was set for March 16, 1995 at 7 p.m.

Ruby River Reservoir Task Force
Meeting Agenda

Thursday
March 16, 1995
7:00 p.m.
Bethany Hall, Sheridan

7:00 p.m.	**Business**
	○ **Approval of minutes**
	○ **Approval of agenda**
	○ **Announcements**
7:10 p.m.	**Consent Decree -- Gary Fritz/Lowell Sauerbier**
7:20 p.m.	**Update on Sediment Management Plan -- Glen McDonald**
7:30 p.m.	**Final Decision on Stream Gages**
	○ **Location**
	○ **Installation**
	○ **Monitoring**
8:00 p.m.	**Break**
8:05 p.m.	**Reservoir Operating Guidelines -- Glen McDonald, Lowell Sauerbier, Neil Todd**
8:35 p.m.	**Implementing the Dewatering Prevention Plan**
	○ **Monitoring**
	○ **Evaluating flow records**
	○ **Measuring devices**
9:10 p.m.	**Date and Agenda for Next Meeting**
9:20 p.m.	**Public Discussion**
9:30 p.m.	**Adjourn**

Ruby River Reservoir Task Force

Meeting Minutes
March 16, 1995
Approved: May 22, 1995

Members Present

Jim Anderson
John Anderson
Jay Barnosky
Steve Burke
Charlie Galiger
Ed Guinnane
Glen McDonald (for Gary Fritz)
Paul Moseley
Dick Oswald
George Swan
Keith Stone
George Trischman
Al Wind

Members Absent

Gary Fritz
Scott Waldie

Others Present

Sofus Christensen
Bill Doggett
Doug Elser (Elser Ranch)
Jack Fenton
Linda Foy (Trout Unlimited)
Ward Jackson (MT Water Resources, Inc.)
Harold Kelly
M.J. Lott, Jr.
David H. Maddison
Lowell Sauerbier
Doug Smith
Steve Stender (Ruby Management)
Dick Todd
Terrill D. Todd
Mary Vandenbosch (DNRC)

Business

Co-chair George Swan called the meeting to order and the agenda was approved. The minutes from the February 22 meeting were approved with the following change: replace the name Neil Todd with "damtender" or "water commissioner" when referencing duties that will be performed for the decreed water users with respect to the dewatering prevention plan.

Swan thanked the decreed water users for all the effort they devoted to developing the plan.

Consent Decree

Mary Vandenbosch reported that Gary Fritz had spoken with Steve Pilcher from the Department of Health and Environmental Sciences (DHES). They have not yet drafted the consent decree because the legal staff has been busy working on legislation. They plan to start working on it next week.

Update on Sediment Management Plan

Glen McDonald reported that a draft environmental assessment on the sediment management plan had been published and circulated for comment by the Department of Natural Resources and Conservation (DNRC). The deadline for comments is March 20, 1995. The DNRC held a meeting on March 7 with irrigators who would be affected by the sediment movement. The irrigators agreed on two things: 1) the DNRC should work with the Board of the Ruby River Water Users Association (RRWUA) in carrying out the plan; and 2) the sediment movement should begin as soon as possible by sending pulses of water down the West Bench and Vigilante canals for periods of 6 to 8 hours. The DNRC will also stay in contact with Bill Doggett (who represents the first five ditches below the two major canals) and Keith Stone.

The DNRC met with the RRWUA board and agreed to begin the pulses April 4, if possible, and if not, April 10.

McDonald distributed tables showing the results of the analysis of the sediment samples. The samples were not contaminated.

Stream Gages

The subcommittee on stream gages recommended that stream gages be installed at the following bridges: Alder, Harrington, Wheatley, and Silver Springs. If a fifth gage is installed, it would be at Seyler bridge.

Lowell Sauerbier said the RRWUA would pay for installation of the gages. Jay Barnosky said he had spoken with Judie Tilman about getting a grant to help pay for the cost. Keith Stone said the decreed water users will pay for monitoring, maintenance and operation of the gages.

Glen McDonald said that Larry Dolan from the DNRC would provide technical assistance with the siting and installation of the stream gages.

Dewatering Prevention Plan

George Swan asked if everyone was in agreement with the following approach:

1) Install the stream gaging stations.
2) Implement the water delivery plan developed by the decreed water users.
3) Set target flows in five to ten years.

John Anderson and George Trischman said that the members present at the February 22 meeting had agreed to this plan.

Dick Oswald said this plan would be acceptable as long as target flows for each bridge were set in stone at some point in the future. Al Wind said he would prefer to see target flows established in three to five years rather than 5 to 10 years. Oswald said that five years is a pretty good time frame, but it could take 8 or 9 years, depending on the conditions that occur over the next five years. Barnosky suggested that they could start establishing target flows before a final conclusion is reached.

Al Wind asked whether the water delivery plan would keep the river from drying up. Swan and Terry Todd said that with the new plan, water for irrigation would be supplied to people who have not been getting enough water, and in turn there will be enough water for fish. Wind asked whether the plan would assure that the conditions that occurred in 1987 would not be repeated. Terry Todd said that it won't happen again.

Stone distributed some draft documents that had been put together for review by the decreed water users. They are calling themselves the Passamari Water Association. They will be meeting in the near future to get input from decreed water users.

Swan said that the bureaucrats at DNRC will take the plans that have been developed and amalgamate them into a water delivery plan for review by the Task Force.

Swan asked how the stream gaging data would be distributed. Glen McDonald said that if the person hired by the decreed water users reduces the tapes and provides flow tables to the DNRC, the DNRC will publish the data.

Reservoir Operating Guidelines

Glen McDonald said that he had met with the RRWUA Board concerning the reservoir operating guidelines. The DNRC and the RRWUA will present the guidelines to the Task Force at the next meeting.

Swan reported on the status of developing a contract with Turner Enterprises that would require that the 2,634 acre-feet of water that Turner has contracts for be left in the reservoir for the minimum pool. Swan said that a contract with Turner Enterprises has been drafted. The contract will need to be approved by the RRWUA, Turner Enterprises and the DNRC. Swan suggested that the Board vote the shares held by Turner Enterprises.

Date and Time for Next Meeting

The next meeting was scheduled for March 29 at 7 p.m. in the Episcopal Hall (if available). At the next meeting the Task Force will discuss the consent decree and review the policies developed for each item identified in the mission of the Task Force.

Public Discussion

Neil Todd explained that maintaining a minimum pool would create a settling pond (comparable to a bathtub). He raised the question of whether they should periodically "pull the plug" to move the sediment out, as long as the turbidity level stays within an acceptable range. McDonald said that he did not think it be very beneficial to do this. He said that only a very small fraction of the sediment (1/2 an acre-foot in comparison with 2,200 acre-feet of sediment in the reservoir) washed out of the reservoir last fall. He also noted that it may be difficult to predict the turbidity levels; they have found some anomalies at the Nevada Creek reservoir.

Doggett asked whether there was a threshold level at which the turbidity becomes harmful to fish. Oswald explained that it is not the turbidity that kills fish. The fish kill last fall resulted from a lack of oxygen. In addition, the fine sediment gets imbedded in the gravel, prohibiting reproduction.

Doug Smith raised a question about the following paragraph in the proposal developed by the decreed water users:

> In the event that flows in the river reach critically low levels, we would like the first 5% (based on volume diverted) of all water, to be turned back to the river to maintain flows for downstream users. This includes the canal only during free flow. If more water is needed to satisfy the critical flow then priority dates will be used to determine further adjustments.

He asked whether the decreed water users would be cut back five percent while water use by contract holders would remain the same. He said the decreed water users want to know that contract holders are only taking their share. Smith said that, in a critical situation, everyone should cut back. Swan explained that the free flow or high water early in the season has a 1936 priority date and that the free flow water should only be cut back if all water users with an earlier priority date were only taking their share. One member of the audience said that decreed water users shouldn't be cut back and storage water should be cut back if flows are critically low. Terry Todd said that with the dewatering plan, they should not have to use stored water to alleviate problems. Others agreed.

In response to a question from Terry Todd, Dick Oswald explained that samples were collected at Silver Springs and one fourth of the young of the year had whirling disease. The trout population had crashed by 60 percent at a time when the population should be increasing.

The meeting was adjourned.

Ruby River Reservoir Task Force
Meeting Agenda

Monday
May 22, 1995
7:00 p.m.
Episcopal Hall, Sheridan

7:00 p.m. **Business**

- **Approval of minutes**
- **Approval of agenda**
- **Announcements**

7:10 p.m. **Updates**

- **Consent Decree -- Gary Fritz/Lowell Sauerbier**
- **Contract with Turner Enterprises -- George Swan**
- **Sediment Movement -- Glen McDonald**
- **Stream Gages -- Neil Todd, Lowell Sauerbier & Jay Barnosky**
- **Decreed Water Users -- Keith Stone**

7:30 p.m. **Definition of Clear Creek -- George Swan**

7:45 p.m. **Draft Reservoir Operating Guidelines -- Glen McDonald & Neil Todd**

8:10 p.m. **Break**

8:20 p.m. **Draft Dewatering Prevention Plan -- Task Force**

8:50 p.m. **Review of Task Force**

- **Mission and Accomplishments**
- **Draft Final Report**
- **Future Role of Task Force**

9:15 p.m. **Adjourn**

Send address changes to: Mary Vandenbosch, Water Resources Division, Department of Natural Resources and Conservation, PO BOX 202301, Helena, MT 59620-2301. Phone: 444-6635.

Ruby River Reservoir Task Force

Meeting Minutes
May 22, 1995

Members Present

Jim Anderson
John Anderson
Steve Burke
Gary Fritz
Charlie Galiger
Ed Guinnane
Paul Moseley
Dick Oswald
Keith Stone
George Swan
George Trischman
Scott Waldie
Al Wind

Members Absent

Jay Barnosky

Others Present

John Anderson
Sofus Christensen
Bill Doggett
Les Gilman
David Maddison
Glen McDonald (DNRC)
Lowell Sauerbier
Dick Todd
Neil Todd
Mary Vandenbosch (DNRC)

Business

Co-chair George Swan called the meeting to order and the agenda was approved. The minutes from the March 16, 1995 meeting were approved as written.

Updates

Consent Decree
Gary Fritz and Lowell Sauerbier reported that a Consent Decree had been signed by the Department of Health and Environmental Sciences (DHES), the Department of Natural Resources and Conservation (DNRC) and the Ruby River Water Users Association (RRWUA).

Fritz reviewed the requirements of the Consent Decree. First, the DNRC and the RRWUA must submit a Reservoir Operations Plan to the DHES. The reservoir operations plan must include: a map showing the current capacity of the reservoir; a minimum reservoir pool that is adequate to prevent excessive sediment discharge; guidance for DNRC and RRWUA staff regarding the decision-making process for operation of the dam on a daily basis and in an emergency; and a reservoir pool level that will trigger closer monitoring of reservoir discharge rates.

The DNRC has already completed mapping the reservoir. The Task Force has identified a minimum pool and a pool level that will trigger closer monitoring. DHES agrees that the minimum pool established by the Task Force is more than adequate to prevent excessive sediment discharge. The reservoir operating guidelines give an indication of decision-making with respect to the reservoir.

The Consent Decree also requires the DNRC and the RRWUA to:

- implement the sediment management plan;
- maintain a minimum pool of 2,600 acre-feet;
- maintain a minimum flow of 20 to 30 cubic feet per second (cfs) at the dam from November through March;
- install four stream gaging stations during the summer of 1995;
- actively work with the decreed water users to ensure that measuring devices will be installed within the next five years where necessary and critical; and
- submit a brief annual report to DHES summarizing implementation of the compliance measures.

John Anderson expressed appreciation to Lowell Sauerbier, George Swan, Neil Todd and Gary Fritz for the effort they put into working out an agreement on the Consent Decree.

Contract with Turner Enterprises

George Swan reported that the contract with Turner Enterprises had been on hold pending the signing of the Consent Decree. The RRWUA will now move forward with a 10-year agreement with Turner Enterprises to leave their contract water in the reservoir.

Sediment movement

Glen McDonald explained that there were three phases to the sediment management plan. The first phase was the test flush to determine at what flows sediment starts to move. The second phase involved flushing of the sediment into the canals that are located between the dam and the Coy Brown bridge. By May 16 the flows had increased to 470 cfs and turbidity below the dam had been reduced to background levels.

The maximum turbidity that was measured between the dam and the Coy Brown Bridge during this period was 70 NTU. By comparison, the turbidity of the water flowing into the reservoir was 500 to 700 NTU's.

McDonald estimated that about one half of the sediment had been moved through the system at the end of the second phase. The third phase began today when the dam began to spill. Flows will be high enough during this phase to provide adequate dilution. After the high water, the DNRC will survey the streambed to determine what happened to the sediment.

McDonald and Vandenbosch thanked the water users on the West Bench and Vigilante canals and the Ruby Canyon and Stanley ditches for helping with the sediment movement.

Stream gages
Neil Todd explained that the gage houses have been fabricated. The gages will be installed after the high water at the following bridges: Alder, Silver Springs, Harrington, and Wheatley. Sauerbier said that the water users had applied for a grant from the DNRC to help with the costs of installation. An advisory committee will meet during the first two weeks of June to consider grant applications. John Anderson said that it would be helpful if someone from the Ruby Valley Conservation District attended that meeting. Lowell Sauerbier said that Jay Barnosky had been handling the grant application and would be the right person to go.

Decreed water users
Keith Stone said he was working on getting the billing out for the decreed water users this week.

Ruby River Reservoir fishery
Dick Oswald said that he had used gillnets to collect fish in the Ruby Reservoir and found no brown trout, no whitefish, seven suckers and 27 rainbow trout. Twenty-six of the 27 rainbow trout had been marked. This indicates that essentially all of the fish that are in the reservoir now are fish that had been washed into the river and were moved from the river back into the reservoir last fall. All of the other fish that had been in the reservoir died. The Department of Fish, Wildlife and Parks (DFWP) will plant 50,000 Eagle Lake rainbow trout in the reservoir near the end of June.

Snowpack
Glen McDonald distributed current snowpack data and explained that the snowpack this year was the highest on record. Records have been kept since 1961. In summary, approximately 100,000 acre-feet of water will melt and come out of the mountains in May, June and July. He expects to see flows up to 1,000 cfs.

Definition of Clear Creek

George Swan explained some research he had done on the question of whether or not Clear Creek is a ditch or a branch of the Ruby River. The original survey of Madison County was done in 1869. He obtained a copy of the survey from the National Archives. Swan said the survey clearly described Clear Creek as a branch of the Ruby River. There was a brief discussion of the potential ramifications of this conclusion. Swan will provide a copy of the survey to the library. John Anderson suggested that a copy be given to the Ruby Valley Conservation District office.

Prior Rights Transfer on West Bench Canal

Swan said that there had been arguments and discussions about the transfer of prior rights on the West Bench canal. He asked Mel McBeath and Jerry Burke to write down what happened. Swan has copies of those letters.

Reservoir Operating Guidelines

McDonald and Neil Todd discussed the draft reservoir operating guidelines that were put together by the DNRC and the RRWUA. Swan said that he and Moseley had received a letter from Roy Kaiser of the Natural Resources Conservation Service (NRCS). The letter describes the information that the NRCS can provide. The Task Force approved the reservoir operating guidelines.

Dewatering Prevention Plan

The Task Force discussed the draft Water Delivery and Dewatering Prevention Plan. Paul Moseley noted that the plan calls for identification of minimum flows for key points in the river and asked whether or not the plan should identify those points. Keith Stone said he assumed that the stream gaging stations would be key points. Al Wind pointed out that the plan identifies reaches that are frequently dewatered and suggested that Seyler Bridge be added to the list of dewatered reaches.

Gary Fritz asked how the formation of the Ruby Decreed Water Users would result in improved communication. Keith Stone explained that there is a representative for each ditch and a representative for approximately every five ditches going down the river. These people are responsible for making sure that everyone on the ditch is contacted when water is short. In the past, people upriver have not been made aware of dewatering problems in a timely fashion.

John Anderson said that a paragraph about the structure of the decreed water users should be included in the plan and the supplement developed by the decreed water users should be included as an appendix to the final report.

Fritz asked who would determine what is an adequate flow. Oswald said that 25 cfs is the minimum flow required for fish but that they would probably run short of water for irrigation before the water was short for fish. Jim Anderson suggested that the irrigators would be the first to conclude that flows were inadequate.

Several people commented that there is no authority to enforce the plan and that it represents a good faith effort to make things work. The alternative would be to go to a judge.

The Task Force agreed that monitoring staff gages on a daily basis was adequate.

Fritz also asked what would happen when flows at the Silver Springs bridge reached 1.6 on the staff gage. The Task Force agreed that would be an "early warning" level where people would be notified and would prepare to cut back.

Ed Guinnane said that it was important to make sure that all of the water users know about this plan.

Review of Task Force

Gary Fritz reviewed the mission and accomplishments of the Task Force. The Task Force agreed that Mary Vandenbosch could correct the draft report as indicated and then distribute a final report.

Swan reviewed a list of issues that he feels should be addressed:

- New bylaws and contracts should be written for the canals now that they are privatized.
- There is too much paperwork associated with the contracts and they should be computerized.
- Public access for fishing.

Swan said that he feels these aren't issues for the Task Force to address but they should be addressed by someone. Al Wind said that the Lewis and Clark Chapter of Trout Unlimited (TU) has developed an access plan that provides for weed control, fencing, etc. in exchange for access. The plan is flexible. For example, a landowner could choose to allow access for only one day a week. John Anderson suggested that the Lewis and Clark chapter of TU meet with the RRWUA, the Conservation District board and the decreed water users board to explain the access plan. Oswald added that DFWP is working on obtaining access.

Gary Fritz said that Mark Simonich (Director of the DNRC) was pleased with the accomplishments of the Task Force and commended the members for their work. Fritz also said that the Governor often uses the Ruby River Reservoir Task Force as a good example. The Governor would like to visit the Ruby River.

John Anderson said he thought the logical next step is a watershed study planned by the Ruby Valley Conservation District. He would like to see a steering committee set up that comprises primarily local people and not a lot of government people.

Swan thanked everyone for their spirit of cooperation.

The meeting was adjourned.

Appendix C

Consent Decree

COPY

NANCY SWEENEY
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DEPUTY

MONTANA FIRST JUDICIAL DISTRICT COURT
LEWIS AND CLARK COUNTY

STATE OF MONTANA ex rel. DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES, Plaintiff, v. STATE OF MONTANA, DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION and RUBY RIVER WATER USERS ASSOCIATION, Defendants.	Cause No. ADV-95 640

CONSENT DECREE, JUDGMENT, AND ORDER

The Plaintiff, State of Montana ex rel. Department of Health and Environmental Sciences (hereinafter "Plaintiff" or "DHES"), represented by Claudia Massman, Special Assistant Attorney General, and the Defendants, Montana Department of Natural Resources and Conservation, (hereinafter "DNRC"), represented by Donald MacIntyre, Chief Legal Counsel of DNRC,

and the Ruby River Water Users Association, (hereinafter "RRWUA"), represented by Russ McElyea of the law firm of Moore, O'Connell & Refling, have stipulated and agreed to the entry of the facts and terms within this Consent Decree. The Court, being otherwise fully informed in the matter, hereby approves the parties' stipulations and adopts the following Stipulations as its Findings of Fact and Conclusions of Law as set forth in this Consent Decree.

STIPULATIONS

A. Jurisdiction

1. The DHES filed a Complaint in this matter on May 25, 1995.

2. The parties agree that this Court has jurisdiction over the subject matter of this action and over the parties to this action. Defendants acknowledge the requirements of service are satisfied according to Rule 4D, M.R.Civ.P.

B. Objectives

3. The DHES, DNRC, and RRWUA wish to resolve this matter without further litigation and without affecting or impairing any interests, claims, or defenses other than as explicitly stated herein.

4. The resolution stipulated to herein is intended to ensure that the operation of the Ruby River Reservoir achieves and maintains compliance with the State's water quality standards adopted under the authority of the Water

Quality Act (Title 75, Chapter 5, Montana Code Annotated (MCA)).

C. Binding Effect

5. The provisions of this Consent Decree shall apply to and be binding upon the DHES, DNRC, RRWUA, and their successors in interest or assigns.

D. General Provisions

6. The DHES is the state agency charged with the administration and enforcement of the Montana Water Quality Act, Title 75, Chapter 5, MCA, (hereinafter the "Water Quality Act"), including the authority to enforce water quality standards adopted pursuant to that Act.

7. The Defendant, DNRC, is the state agency charged with the administration of water development projects, including the construction of irrigation and flood projects, pursuant to Title 85, Chapter 1, part 2, MCA. DNRC constructed and owns the Ruby River Reservoir located in Madison County, Montana, and has acquired the right to store, control, and divert all unappropriated water of the Ruby River in Madison County, Montana.

8. The Defendant, RRWUA, is a corporation organized and existing under the laws of Montana and doing business in Montana. RRWUA is the operator of the Ruby River Reservoir in Madison County, Montana, pursuant to a contract entered into between DNRC and RRWUA on March 3, 1937, and amendments thereto.

9. Pursuant to its authority to enforce the State's Water Quality Act, DHES commenced this action alleging that the defendants caused pollution of the Ruby River by the withdrawal of water from Ruby River Reservoir (hereinafter "Reservoir") in violation of Section 75-5-605(1)(a) of the Water Quality Act and surface water quality standards adopted pursuant to that act. In particular, the withdrawal of water from the Reservoir on September 1, 1994, caused violations of the turbidity and oxygen standards in Ruby River and resulted in a fish kill in the river below the dam.

10. The DHES alleges that as a result of the drainage of the Reservoir on or before September 1, 1994, approximately 3,000 cubic yards of sediment remain deposited in the first three miles of the Ruby River channel below the dam. The continued presence of this sediment will likely cause future violations of the turbidity and oxygen water quality standards in Ruby River when those sediments are flushed downstream in spring runoff.

11. The parties to this Consent Decree recognize the need to formally address the violations alleged in the Complaint and ensure that future operations of the Reservoir will achieve and maintain compliance with the water quality standards. The Defendants have been actively engaged in the preparation of a "Reservoir Operations Plan", "Sediment Management Plan", and resource protection activities to address this need. Accordingly, the parties agree that it is appro-

priate that the Defendants implement the compliance measures, specifically the Reservoir Operations Plan, the Sediment Management Plan, and resource protection activities, as further described below.

E. Compliance Measures

12. Upon entry of this Consent Decree, DNRC and RRWUA agree to submit to the DHES a "Reservoir Operations Plan" that shall contain the following information:

(a) A completed mapping of the Reservoir to establish its present capacity to determine if there has been a loss of acre-feet since its original construction in 1938;

(b) The establishment of a pool that must be at least the minimum size necessary to prevent excessive sediment discharge;

(c) Guidance for DNRC and RRWUA staff regarding the decision-making process for the daily operation of the dam and its operation in cases of an emergency; and

(d) Identify a pool level that will trigger closer monitoring of the reservoir discharge rates.

13. Defendants DNRC and RRWUA further agree to immediately implement the Ruby River "Sediment Management Plan", dated March 24, 1995, in accordance with DHES Authorization No. Mt-40-95, regarding a short-term exemption from surface water quality standards.

14. The parties agree that on receipt of the "Reservoir

Operations Plan" described above (hereinafter "plan"), the DHES shall have fifteen (15) days to review the plan, and may in consultation with the Defendants make changes to the plan that are reasonably necessary to maintain the applicable turbidity and oxygen water quality standards for Ruby River. DNRC and RRWUA agree to implement the plan with the changes that the Department approves as being reasonably necessary to implement the plan.

15. In addition to the requirements specified in paragraphs (12) through (14) above, DNRC and RRWUA agree to perform additional resource protection/conservation activities to enhance the fishery and to maintain an adequate water supply for water users as described in paragraphs (16) through (19) below.

16. In order to enhance the fishery, the Defendants agree to maintain water in the Reservoir significantly above the minimum acre-feet necessary to ensure compliance with water quality standards. The Defendants agree to maintain an absolute minimum level of 2,600 acre-feet at an approximate annual cost estimated to be Three Thousand Seventy-eight Dollars ($3,078) per year; the net present value of maintaining a reservoir pool in excess of that required to prevent excessive sediment discharge is estimated to be Three Hundred and Sixty-seven Thousand Dollars ($367,000). DHES agrees a minimum level of 2,600 acre-feet is significantly above the minimum acre-feet necessary to achieve compliance with water

quality standards.

17. In order to prevent dewatering of the Ruby River and to benefit the fishery, the RRWUA agrees to maintain a minimum release from the dam into Ruby River of 20 to 30 cubic feet per second during the months of November through March of each year. The net present value of the in-stream flows (approximately 6,000 to 9,000 acre-feet per year) over a 50-year period is estimated to be $958,369 to $1,437,553.

18. In order to ensure that adequate flows are maintained in Ruby River for irrigation uses and for the support of the fishery, Defendants agree to install four stream gaging stations during the summer of 1995. The total cost for installation, operation, and maintenance of these stations is estimated to be $83,400.

19. In order to ensure adequate delivery of water for irrigation and to prevent dewatering, the RRWUA agrees to actively work with the decreed water users to ensure that measuring devices will be installed where necessary and critical to ensure delivery of water, to prevent dewatering within the next five years, and to ensure the use of water commensurate with decreed rights. It is anticipated that such devices will be installed on various ditches at an average cost of $2,500 per ditch.

20. DNRC and RRWUA further agree to provide to DHES a brief annual report summarizing implementation of the compliance measures described in paragraphs (12) through (19)

above.

F. Release/Settlement

21. (a) In consideration for the actions taken by Defendants under this Consent Decree, the DHES releases and covenants not to bring further actions against Defendants for violations of water quality alleged in the Complaint and resulting from the dewatering of the Ruby River Reservoir in September, 1994. DHES further covenants and agrees not to pursue further legal action against the Defendants for water quality violations not raised in the Complaint, but arising from the dewatering of the Ruby River Reservoir in September, 1994. The releases and covenants provided by DHES in this paragraph are conditioned upon proper implementation of this Consent Decree, Judgment and Order by the Defendants. This covenant not to sue does not limit the DHES' authority either to enforce this Consent Decree or to enforce otherwise applicable environmental laws and regulations.

(b) This Consent Decree constitutes a full settlement and resolution of Defendants' noncompliance with the Water Quality Act as alleged in the Department's Complaint dated May 25, 1995.

G. Reservation of Rights

22. The DHES reserves its rights to bring an action against any person, including the defendants, for civil or criminal penalties or injunctive relief for any violation of the Water Quality Act that is not specifically addressed by

the Complaint in this matter, by this Consent Decree, or which does not arise from dewatering of the Ruby River Reservoir in September, 1994. The DHES also reserves all legal and equitable remedies available to it to enforce the provisions of this Consent Decree.

23. The DHES does not, by its consent to the entry of this Consent Decree, warrant or aver in any manner that the Defendants' complete compliance with this Consent Decree will result in compliance with applicable provisions of the Montana Water Quality Act or rules implementing that Act. Notwithstanding the DHES' review and approval of any plans formulated pursuant to this Consent Decree, the Defendants' shall remain solely responsible for compliance with the terms of the Act and this Consent Decree.

24. The Defendants reserve their rights which they may have to oppose and defend against any claims brought by the DHES that are not averred in the Complaint, and to assert any claims they may have against any person.

H. Effective Date

25. This Consent Decree is effective upon the date of execution by this Court.

I. Termination

26. The Defendants may petition the Court, with service to the DHES, for termination of this Consent Decree when Defendants have completed all obligations specified under the Compliance Terms of this Consent Decree.

J. Authorization

27. The undersigned representatives of the Defendants and the DHES certify that they are authorized by their respective parties to enter into this Consent Decree and to execute and legally bind that party to the terms and conditions of this Consent Decree.

28. The parties hereby agree to the entry of this Consent Decree, Judgment and Order as more fully appears from their signatures written below.

MONTANA DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

BY: _____
Robert J. Robinson
Director

MONTANA DEPARTMENT OF NATURAL RESOURCES AND CONSERVATION

BY: _____
Mark Simonich
Director

MONTANA DEPARTMENT OF HEALTH AND ENVIRONMENTAL SCIENCES

BY: _____ 5/18/95
Claudia L. Massman
Assistant Attorney General

RUBY RIVER WATER USERS' ASSOCIATION

BY: _____ Pres.

ORDER AND JUDGMENT

THIS MATTER having come before the Court upon the parties' request for entry of this Consent Decree, Judgment, and Order, and the Court having fully reviewed the matter, it is hereby

FOUND that the terms and provisions of this Consent Decree in their entirety represent a fair, reasonable, and

equitable settlement of all matters and it is therefore

ORDERED that the foregoing terms and conditions of the Consent Decree are adopted by the Court and made an Order and Judgment of this Court.

DATED this 30 day of May, 1995.

DOROTHY McCARTER
District Judge

Appendix D

Reservoir Operating Guidelines

Appendix D

Ruby River Reservoir
Operating Guidelines

The Ruby River Reservoir is owned by the Department of Natural Resources and Conservation (DNRC) and operated by the Ruby River Water Users (RRWUA). The reservoir is to be operated within the guidelines outlined below.

Regulate Outflow

Goals:

- Satisfy contracts.[1]
- Minimize erosion and downstream flooding.
- Prevent dewatering of the Ruby River downstream from the reservoir.

Guidelines:

1. The maximum sustainable outflow is 18,000 miner's inches (450 cfs). This rate can be exceeded up to a maximum of 24,000 miner's inches (600 cfs) for short periods of time.

2. A minimum flow of 800 to 1,200 miner's inches (20-30 cfs) must be maintained at the dam outlet.

3. If there is a demand from decreed water users, the amount of the inflow to the dam shall be allowed to flow out of the reservoir and past the diversion dam.

4. The RRWUA will work with contract holders, decreed water users and the DNRC to implement the Water Delivery and Dewatering Prevention Plan for the Ruby River.

5. The RRWUA shall notify the DNRC when flows drop to key points identified in the Water Delivery and Dewatering Prevention Plan for the Ruby River. Staff gage readings from the following bridges will also be reported to the DNRC as noted in the plan: Coy Brown, Alder, Laurin, Silver Springs, Harrington and Wheatley.

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[1]Peak irrigation demand is typically 20,000 to 25,000 miner's inches (500 to 625 cfs). In mid-July irrigation demands decrease to 12,000 to 15,000 miner's inches (300 to 375 cfs).

Regulate Reservoir Elevations

Goals:

- Provide stored water to fulfill contracts.
- Prevent sediment from washing out of the reservoir and adversely affecting water quality downstream by maintaining a minimum pool in the reservoir.

Guidelines:

1. By April 1 of each year, the RRWUA and the DNRC shall meet to evaluate reservoir storage, snowpack, streamflow, streamflow forecast, soil moisture and the weather forecast.

   If the reservoir elevation is higher than average[2] and indications are that a wet, high runoff spring could exist, the RRWUA and the DNRC will consider increasing the outflow to provide some capacity for flood control and also to postpone the spill so that it coincides with peak irrigation demand.

   If the reservoir elevation is lower than average and conditions indicate that a dry, low runoff spring[3] could exist, the RRWUA and DNRC will evaluate alternatives for allocating water to ensure that water is available throughout the irrigation season.

2. The RRWUA will notify the DNRC when the free-flow or natural flow period has ended and the RRWUA begins to satisfy contracts for stored water.

3. If the amount of water in the reservoir drops to 7,500 acre-feet, representatives of the RRWUA, the DNRC and the Department of Fish, Wildlife and Parks will meet to discuss future operation of the reservoir and to determine what accommodations need to be made in order to maintain a minimum pool. The DNRC will establish a benchmark at the corresponding elevation.

4. The reservoir storage may not be drawn down below 2,600 acre-feet, which is the absolute minimum pool. The DNRC will establish a benchmark at the corresponding elevation.

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[2]5,384 feet.

[3]For example, dry conditions existed during the years 1988, 1992 and 1994. Conditions during these years can be used for comparison purposes.

5. The RRWUA will report to the DNRC every two weeks on the current reservoir elevation.

Emergency Response

Goals:

- Provide maximum early warning in the event of a failure of the Ruby Dam. Minimize loss of life or property.

Guidelines:

1. The RRWUA will follow the Emergency Plan for the Ruby Reservoir.

Maintenance

Goals:

- Maintain the dam in good condition so that it will continue to fulfill its function of providing a reliable source of irrigation water.

- Maintain the dam in good condition so as to minimize the risk to life or property downstream of the dam.

Guidelines:

1. The RRWUA will operate and maintain the reservoir in accordance with the Ruby River Reservoir Manual for Operation and Maintenance.

Appendix E

1988 Plan to Avoid Dewatering of the Ruby River Project

4/7/88

PLAN TO AVOID
DEWATERING
OF THE
RUBY RIVER PROJECT

The Ruby River Project was one of many built throughout the West during the drought years of the 1930s. These projects were intended not only to assure a reliable supply of water to agricultural lands, but to provide emergency employment for people hard hit by the Depression.

The reservoir has a capacity of 38,850 acre-feet and supplies water for private diversions along the Ruby River and for two state-owned canals, Vigilante and West Bench. The project provides a firm supply of water for irrigation in the Ruby River Valley. An important trout fishery exists below the dam as well.

In most years, early irrigation season streamflows in the Ruby River below the dam are sufficient to maintain instream flows to satisfy all irrigation demands. In years when there is little runoff, however, initial irrigation withdrawals can dewater the river in some stretches. This situation has occurred twice in recent years.

In May of both 1985 and 1987, below normal snowpack, extremely low spring percipitation, high spring temperatures, and poor soil moisture conditions, coupled with large initial

irrigation withdrawa., resulted in the cessatic of streamflow in the vicinity of Harrington Bridge near Sheridan (T5S R5W Sec. 6). This dewatering resulted in shortages of irrigation water for downstream water users and a large kill of brown trout of all ages. In both years, water diverted into canals between the Ruby Dam and the town of Alder resulted in little streamflow at the Alder and Laurin Bridges. Unseasonably dry soils initially abosorbed most of the water turned into the canals and onto the fields, delaying the recharge to the groundwater system that typically carries some of the irrigation water back to the river. The large initial diversion for water occurred with little or no forewarning.

The stream channel in the Harrington reach appears to be very susceptible to dewatering, during low water years. The reach has deeply scoured meander pools separated by large elevated gravel bars. Streambed gravels must be quite porous because, in both 1985 and 1987, natural accretions downstream from the Harrington reach resulted in live streamflow. This flow, however, was only enough to allow trout survival over the short term, and was not enough to satisfy downstream irrigation needs. Releases from the dam of about 600 cfs in 1985 and 650 cfs in 1987 helped in restoring flows in the dewatered section at Harrington bridge. In 1987 flows entered the dewatered section 15-20 hours after increased releases were made at the dam.

The irrigation season of 1988 could cause a repeat of the dewatering problems of 1985 and 1987. This reach of the streambed could become dewatered unless one or more conditions

occur--irrigation recharge the groundwater system that feeds the river, irrigation diversions are reduced, outflows from the dam are increased, or sufficient precipitation occurs.

Releases from the Ruby River Dam are limited by problems with the outlet tunnel and stilling basin. Dam releases in excess of 450 cfs can result in cavitation in the transition area of the outlet tunnel and has resulted in erosion of the outlet stilling basin riprap. Therefore a release more than 450 cfs to satisfy all irrigation demands and instream fishery needs should be avoided if possible.

During 1985 and 1987, at the height of the dewatering problem, systematic observations were carried out by the DNRC Water Resources, personnel, by water users, and by Department of Fish, Wildlife and Parks personnel. Aerial observations in 1985 and similar, on the ground observations in 1987 revealed the characteristics of the dewatering of the Harrington reach. Dam releases of approximately 450 cfs were not sufficient to maintain streamflow in the Harrington reach. Moreover, increased releases to 500 cfs were not sufficient to reestablish streamflow in the reach. In both years, releases of about 450 cfs were nearly completely withdrawn by canals between the dam and the Alder bridge (T6S R4W Sec. 8/17). (At that time, an estimated 10-15 cfs was flowing under the Alder bridge.) In the reach between Laurin bridge (T5S R4W Sec. 32) and Silver Springs bridge (T5S R5W Sec. 10), the river slowly recharged from groundwater and tributary inflow to a level adequate to meet irrigation demands and fishery needs. Immediately downstream from the Silver

Springs bridge, however, two major canals, the Clark-Sennett (T5S R5W Sec. 10) and Thompson (T5S R5W Sec. 9) ditches essentially withdrew the flow, resulting in complete cessation of streamflow one-half mile above and below the Harrington bridge, referred to as the Harrington reach.

The Harrington reach is the critical reach at which to monitor and maintain streamflow at the onset of the irrigation season, particularly in low runoff years. The best location to monitor the Harrington reach is upstream at the Silver Springs bridge. Both the Clark-Sennett and Thompson ditches withdraw from the Ruby River downstream from this bridge, and it can be assumed that both were withdrawing water during the periods of dewatering.

Table 1 shows staff gage heights at the various bridge locations from May 12 through May 22, 1987. Live streamflow in the Harrington reach ceased sometime on or before May 10 and resumed by the evening of May 13.

As shown in Table 1, a gage height of 1.10 feet at Silver Springs was indicative of no live flow in the Harrington reach despite release of 482 cfs at the dam on May 12. On May 13, the Silver Springs gage height of 1.15 feet was indicative of only a trickling flow between pools in only the upper half of the dewatered Harrington reach, while a Silver Springs evening gage height of 1.60 feet resulted in live flow throughout the Harrington reach. Dam releases of about 650 cfs at midnight May 12 contributed to the resumption of live flow in the Harrington reach.

Table 1.
Gage height readings (feet) from DNRC staff gages
at county road bridges on the Ruby River during May 1987

Date and Time*		Bridge Locations**				
		Alder	Laurin	Silver Springs	Harrington	Phipps
5/12	PM	3.90	0.90	1.10	0.0	--
5/13	AM	5.40	1.58	1.15	0.00	--
	Noon	5.50	1.90	1.38	0.00	--
	PM	5.46	1.85	1.60	***	--
5/14	AM	5.40	1.86	1.72	1.79	4.50
	PM	5.25	1.88	1.79	1.84	--
5/15	AM	5.20	1.66	1.66	1.81	--
	PM	4.79	1.63	1.66	1.77	--
5/16	AM	4.69	1.35	1.42	1.62	--
	PM	4.64	1.39	1.48	1.64	--
5/17	AM	4.58	1.34	1.80	1.95	--
	PM	4.50	1.31	1.73	1.93	5.05
5/18	AM	4.46	1.25	1.62	1.85	4.91
5/22	PM	4.05	0.95	1.87	2.00	5.22

* AM readings between 6:00 and 9:00;
PM readings between 5:00 and 7:00

**Downstream direction from Alder to Phipps

***Live flow occurred but was not measurable by the staff gage.

The May 13 noon gage height reading of 1.38 feet at Silver Springs did not produce flowing water throughout the Harrington reach, but the flow had increased over that observed the morning of May 13. On May 14, dam releases were dropped to 598 cfs and on May 15 dropped again to 521 cfs. On the morning of May 16, the gage height at Silver Springs had dropped to 1.42 feet and the Harrington gage had dropped to 1.62 feet. Average releases at the dam had dropped to 445 cfs.

The gage heights on May 16 were representative of stable flow throughout the Harrington reach. Therefore, based on available data, a gage height of 1.42 feet at the Silver Springs bridge

indicates a flow regime which will result in sufficient flow to maintain a live stream throughout the Harrington reach. This gage height is selected under the assumption that the Clark-Sennett and Thompson ditches are withdrawing their maximum water allotment during the period.

The Proposed Plan

The purpose of this plan is to anticipate and prevent dewatering of the Ruby River by implimenting a program for early start up of irrigation diversions during a low water year.

The Association and DNRC have worked together to meet the problem if it recurs. It is better to avoid the serious effects of dewatering of the river and the impacts to irrigation and the fisheries rather than reacting to alleviate the problem after the damage has been done. The plan proposed to implement this process is as follows:

Step 1. During the first half of March of each year, DNRC confers with the Association to discuss the snowpack, reservoir storage, streamflow, streamflow forecast, and soil moisture of the basin to determine what type of water year can be expected. If indications are that a dry, low runoff spring could exist, then:

Step 2. DNRC and the Association meet as soon as the April snow survey data is available to discuss expected conditions for the spring and actions to be taken by DNRC and the Association pursuant to this plan. Provisions are made for the Association's water users to begin selective irrigation

diversions as early as the second half of April if the dry, low runoff conditions persist. This procedure provides for earlier irrigation on the Association water users' land. The effect is two-fold: recharge from irrigation application enters the river earlier, and large initial diversions are reduced. If poor climatic conditions persist, then:

Step 3. The Association water users begin selective irrigation diversions as early as the second half of April. The beginning of irrigation on an agreed-upon date triggers the Ruby River monitoring by the Association's designated observers at the staff gages shown in Table 2. The damtender notifies DNRC as to the magnitude of withdrawals at the project's canal diversions and the expected dam releases and changes in diversions. Staff gages will be read and recorded twice a day by the observers. DNRC will contact the Association's contact person and/or observers on a timely basis to receive gage height readings.

Table 2.
Staff Gage Location and Observer

Location	Observer	Phone
Alder	Harold Kelly	842/5294 or 842-5152
Laurin	Charlie Galiger	842-5643
Silver Springs	Jay Barnosky	842-5261
Harrington	Jack Fenton	842-5577
Phipps	Sid Smith	684-5280

Association contacts:
Neil Todd, Damtender, 842-5562
Lowell Sauerbier, 842-5295
Jerry Burke, 842-5960
Charlie Galiger, 842-5643

DNRC contact:
Steve Fry, 444-6646 (work)
443-5043 (home)

Step 4. If flow at Silver Springs drop to a gage height of 1.60 feet, the Association's contact person and/or observers notify DNRC as soon as possible. Releases from the dam may have to be increased and/or diversions into project, and private canals will have to be reduced on short notice. The Association and DNRC will identify, by consultation, the specific actions to be carried out in Step 5.

Step 5. If flows at Silver Springs further drop to a gage height of 1.42 feet, the Association's contact person and/or observers immediately notify DNRC. DNRC and/or the Association will increase releases from the dam and/or reduce diversions to maintain an adequate flow through the Harrington reach. With the information currently available, this is accomplished by maintaining a gage height of 1.42 feet at Silver Springs.

Step 6. The Association observers will continue to monitor and report gage heights until flows at Harrington Bridge are adequate and stable. At that time, with the agreement of the Association and DNRC, the Association will notify the damtender to cut back the dam releases in increments and/or adjust canal diversions back to normal operating conditions.

It is important to note that under conditions like those in May 1985 & 1987 in which the reservoir inflows were near 100 cfs a minimum of 20 cfs must flow in the stretch of river between Silver Springs bridge and Harrington bridge in order to meet downstream senior water rights. (See Appendix A)

This proposed pla.. is derived from a limited .ount of data. It is possible that the critical point of 1.42 feet at Silver Springs bridge could be adjusted upward or downward as more data become available. Gage heights will be monitored and streamflow measurements made that can be compared with USGS flow data at the dam. Any adjustments to the plan can then be made, if necessary.

There is a possibility that maintaining sufficient streamflow through the Harrington reach could result in a new dewatered reach of river below that point occurring due to previously unsatisfied irrigation demand downstream. If this should occur, this action plan would have to be modified.

Before or during the Association's annual meeting of the years in which this plan is implemented, the results will be reviewed and the plans modified as needed.

Appendix A

Satisfaction of Claimed Rights

Early in the irrigation season of dry years like 1985 and 1987, flow to the Ruby River from tributaries and irrigation return flows can be virtually non-existent for up to several weeks. Under such extremely dry, low-water conditions, satisfaction of claimed rights depends on passing all inflows through the reservoir when those inflows are less then the claimed right flows needed below the dam. Similarly, if reservoir inflow is less than claimed right demands, diversions by rightholders should be reduced in order of priority until they are the same as reservoir inflow.

For early season, dry-year flow conditions, Table 3 identifies the relationship between reservoir inflows and the priority dates of claimed rights below Ruby Dam which would be satisfied by passage of these inflows. For a given reservoir inflow, Table 4 gives the river flows that should exist at various points downstream of the dam to assure that the claimed rights are satisfied in order of priority. If the water rights are adjudicated and decreed differently than as claimed then these figures will need to be modified accordingly.

In all cases, this is the minimum flow that should be in the river at any time for downstream irrigation water rights, since releases of stored water for use by Association members in the lower part of the Ruby drainage are not included. As an example, at a reservoir inflow of 100 cfs during the irrigation season and with no flow accretion from tributary inflows or return flows,

only those water right-holders with priority dates of April 15, 1866, or earlier should be diverting water. Other irrigators can only divert water if the water they are diverting is entirely water released from storage in the reservoir.

Table 3.
Inflow and Junior Rights

Reservoir Inflow (cfs)	Most Junior Right Satisfied
50	12/31/1865
100	4/31/1866
150	5/31/1866
200	5/15/1867
250	4/01/1872
300	4/01/1875
350	6/3/1876
400	6/01/1882
450	5/15/1886

Table 4.
Flow needed (cfs) to satisfy senior downstream rights

Reservoir Inflow	Coy Brown	Alder	Laurin	Silver Springs	Harrington	Phipps
50	13.2	13.2	10.7	6.0	6.0	-0
100	35.8	26.4	22.3	16.0	16.0	-0
150	72.0	57.3	27.7	16.0	16.0	-0
200	121.0	106.0	76.5	64.7	42.2	-0
250	144.6	124.7	95.1	79.5	54.6	12.3
300	180.4	158.0	128.4	112.8	69.3	21.0
350	226.1	185.3	145.8	130.2	69.3	27.0
400	270.1	224.6	185.0	161.9	76.7	34.5
450	341.4	236.0	196.4	161.9	76.7	34.5

Under this scenario, the table shows that there should be no less than 20 cfs flowing at both Silver Springs bridge and Harrington bridge to satisfy senior water rights further downstream. This example is particularly appropriate in light of the situation during May 14-16, 1987, when inflows to the

reservoir fell to 111 cfs, tributary inflows were minor, and return flows from recent irrigation had not yet reached the river to any significant degree. This illustration has been over simplified with the intent to show that senior water rights may need to be satisfied that are downstream of the Harrington reach.

The following assumptions were made:

-- This analysis deals only with water rights, and not project contract water.

-- Decreed rights are satisfied in order of priority.

-- When there is insufficient water to satisfy all rights having the same priority date, those rights are satisfied on a pro-rata basis.

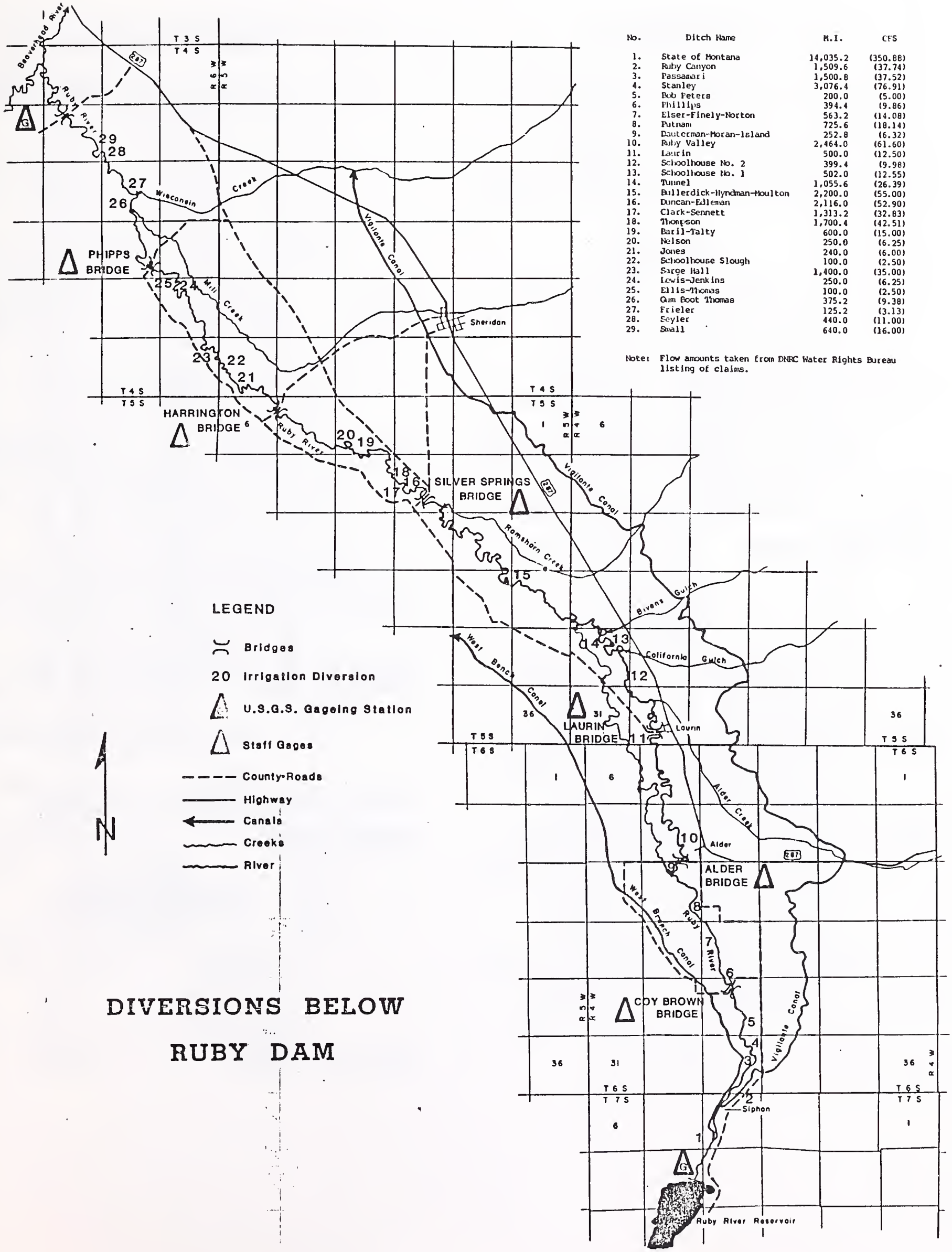
-- All water rights are satisfied by passing Ruby reservoir inflows through the reservoir (assuming no significant flow accretion occurs between the dam and the mouth of the Ruby River).

-- One unit of flow at a bridge is equal to one unit of flow at a diversion downstream of that bridge.

-- All claimed water rights are valid.

-- Senior water rights are called for during this time period.

The Water Users' Association and DNRC will continue to work together to alleviate the problem of water shortages. If a drought recurs, the proposed plan will be put into action, and modified if it is necessary.



No.	Ditch Name	M.I.	CFS
1.	State of Montana	14,035.2	(350.88)
2.	Ruby Canyon	1,509.6	(37.74)
3.	Passamari	1,500.8	(37.52)
4.	Stanley	3,076.4	(76.91)
5.	Bob Peters	200.0	(5.00)
6.	Phillips	394.4	(9.86)
7.	Elser-Finely-Norton	563.2	(14.08)
8.	Putnam	725.6	(18.14)
9.	Dauterman-Moran-Island	252.8	(6.32)
10.	Ruby Valley	2,464.0	(61.60)
11.	Laurin	500.0	(12.50)
12.	Schoolhouse No. 2	399.4	(9.98)
13.	Schoolhouse No. 1	502.0	(12.55)
14.	Tunnel	1,055.6	(26.39)
15.	Bullerdick-Hyndman-Moulton	2,200.0	(55.00)
16.	Duncan-Edleman	2,116.0	(52.90)
17.	Clark-Sennett	1,313.2	(32.83)
18.	Thompson	1,700.4	(42.51)
19.	Baril-Talty	600.0	(15.00)
20.	Nelson	250.0	(6.25)
21.	Jones	240.0	(6.00)
22.	Schoolhouse Slough	100.0	(2.50)
23.	Sarge Hall	1,400.0	(35.00)
24.	Lewis-Jenkins	250.0	(6.25)
25.	Ellis-Thomas	100.0	(2.50)
26.	Gim Boot Thomas	375.2	(9.38)
27.	Frieler	125.2	(3.13)
28.	Seyler	440.0	(11.00)
29.	Small	640.0	(16.00)

Note: Flow amounts taken from DNRC Water Rights Bureau listing of claims.

LEGEND

- Bridges
- 20 Irrigation Diversion
- U.S.G.S. Gageing Station
- Staff Gages
- County-Roads
- Highway
- Canals
- Creeks
- River

N

DIVERSIONS BELOW RUBY DAM

APPENDIX B

IRRIGATION DIVERSIONS BELOW RUBY DAM

RUBY CANYON

	Date	Rate (cfs)
	*5/15/1865	7.50
	5/15/1866	5.00
	5/15/1872	14.16
	5/15/1967	4.00
RUBY CANYON TOTAL		**37.74 cfs**

PASSAMARI

	Date	Rate (cfs)
	5/15/1870	6.25
	5/15/1870	6.25
	5/15/1870	6.25
	5/15/1870	6.25
Total	***5/15/1870**	**25.00 cfs**
	6/20/1899	3.13
	6/20/1899	3.13
	6/20/1899	3.13
	6/20/1899	3.13
Total	**6/20/1899**	**12.52 cfs**
PASSAMARI TOTAL		**37.52 cfs**

STANLEY

	Date	Rate (cfs)
	4/1/1865	1.50
	4/1/1865	1.25
	4/1/1865	0.50
Total	***4/1/1865**	**3.25 cfs**
	4/00/1865	**1.25 cfs**
	5/15/1865	7.50
	5/00/1865	5.00
Total	**5/65**	**12.50 cfs**
	00/00/1865	4.41
	00/00/1865	3.00
	00/00/1865	1.50
	00/00/1865	1.25
	00/00/1865	0.88
	00/00/1865	0.75
	00/00/1865	0.50
Total	**00/00/1865**	**12.29 cfs**

*Earliest priority on ditch.

STANLEY DITCH, cont.

	Date	Rate (cfs)
	4/1/1866	7.50
	4/1/1866	5.63
	4/1/1866	4.41
	4/1/1866	2.50
	4/1/1866	2.50
	4/1/1866	2.50
	4/1/1866	1.00
	4/1/1866	0.63
	4/1/1866	0.40
Total	**4/1/1866**	**27.07 cfs**
Total	**4/00/1866**	**1.50 cfs**
	5/29/1866	2.50
	5/29/1866	2.00
	5/00/1866	1.75
	5/00/1866	1.75
	5/00/1866	0.60
Total	**5/1866**	**8.60 cfs**
	00/00/1875	0.58
	00/00/1875	0.20
	5/15/1876	0.50
	00/00/1876	1.70
	00/00/1876	0.58
	00/00/1876	0.25
Total	**1875 & 76**	**3.81**
	5/15/1886	1.79
	5/15/1886	1.10
Total	**5/15/1886**	**2.89**
STANLEY TOTAL		**73.16**

BOB PETERS DITCH

	Date	Rate (cfs)
	*5/15/1869	1.46
	5/15/1876	3.54
PETERS TOTAL		**5.00 cfs**

COY BROWN BRIDGE PHILLIPS DITCH

	Date	Rate (cfs)
	*4/1/1866	1.25
	4/15/1866	4.68
	4/15/1866	1.48
	4/00/1866	2.45
PHILLIPS TOTAL		**9.86**

IRRIGATION DIVERSIONS BELOW RUBY DAM

ELSER-FINELY-NORTON DITCH

	Date	Rate (cfs)
	*5/15/1869	1.09
	00/00/1869	1.46
	00/00/1869	0.73
	5/15/1876	2.66
	5/15/1876	1.77
	00/00/1876	3.54
	5/15/1883	2.83
E.-F.-N.	**TOTAL**	**14.08**

PUTNAM DITCH

	Date	Rate (cfs)
	*4/15/1866	0.54
	4/00/1866	1.86
	4/00/1866	1.58
	5/00/1866	0.79
	5/00/1866	0.40
Total	**4&5/1866**	**5.17**
	5/1/1874	0.97
	5/15/1874	0.83
	5/15/1874	0.28
Total	**5/1874**	**2.08**
	00/00/1874	0.42
	5/15/1876	4.08
	5/15/1876	3.50
	5/15/1876	1.14
Total	**5/15/1876**	**8.72**
	00/00/1876	1.75
PUTMAN TOTAL		**18.14**

DAUTERMAN-MORAN ISLAND DITCH

	Date	Rate (cfs)
Total	*5/15/1869	1.63
	00/00/1875	3.13
	00/00/1875	1.56
D.-M. ISLAND TOTAL		6.32

*Earliest priority on ditch.

ALDER BRIDGE
RUBY VALLEY DITCH

	Date	Rate (cfs)
	4/1/1866	0.40
	4/1/1866	0.30
	4/1/1866	0.30
	4/1/1866	0.10
Total	*4/1/1866	1.10
	4/00/1866	0.42
	4/00/1866	0.40
	4/00/1866	0.40
	4/00/1866	0.40
	4/00/1866	0.23
	4/00/1866	0.13
	4/00/1866	0.13
	4/00/1866	0.09
	4/00/1866	0.09
	4/00/1866	0.09
	4/00/1866	0.04
Total	**4/00/1866**	2.42
	5/1/1866	2.89
	5/1/1866	1.80
	5/1/1866	1.80
	5/1/1866	1.80
	5/1/1866	1.80
	5/1/1866	1.78
	5/1/1866	1.35
	5/1/1866	1.33
	5/1/1866	1.03
	5/1/1866	0.60
	5/1/1866	0.60
	5/1/1866	0.49
	5/1/1866	0.45
	5/1/1866	0.41
	5/1/1866	0.41
	5/1/1866	0.41
	5/1/1866	0.41
	5/1/1866	0.31
Total	**5/1/1866**	19.67
	5/15/1866	1.80
	5/15/1866	1.78
	5/15/1866	0.30
Total	**5/15/1866**	3.88
	5/15/1886	2.89
	5/15/1886	2.88
	5/15/1886	2.88

IRRIGATION DIVERSIONS BELOW RUBY DAM

RUBY VALLEY, cont.

	Date	Rate (cfs)
	5/15/1886	2.85
	5/15/1886	2.85
	5/15/1886	2.85
	5/15/1886	2.58
	5/15/1886	2.38
	5/15/1886	2.38
	5/15/1886	2.14
	5/15/1886	1.61
	5/15/1886	0.95
	5/15/1886	0.95
	5/15/1886	0.79
	5/15/1886	0.65
	5/15/1886	0.65
	5/15/1886	0.65
	5/15/1886	0.65
	5/15/1886	0.31
	5/15/1886	0.19
Total	**5/15/1886**	**34.53**
RUBY VALLEY TOTAL		**61.60**

LAURIN DITCH

	Date	Rate (cfs)
	4/0/1865	1.42
	4/0/1865	1.08
Total	***4/0/1865**	**2.50**
	0/0/1875	5.68
	0/0/1875	4.32
Total	**0/0/1875**	**10.00**
LAURIN TOTAL		**12.50 cfs**

LAURIN BRIDGE SCHOOLHOUSE NO. 2

	Date	Rate (cfs)
	***5/15/1866**	**0.54**
	6/1/1882	**1.63**
	6/0/1882	1.88
	6/0/1882	1.88
	6/0/1882	1.88
	6/0/1882	0.25
Total	**6/0/1882**	**5.89 cfs**

SCHOOLHOUSE #2, cont.

	Date	Rate (cfs)
	5/15/1886	0.64
	5/15/1886	0.64
	5/15/1886	0.64
Total	**5/15/1886**	**1.92 cfs**
SCHOOLHOUSE #2 TOTAL		**9.98 cfs**

SCHOOLHOUSE NO. 1

	Date	Rate (cfs)
	5/15/1865	1.88
	5/15/1865	0.94
Total	***5/15/1865**	**2.82**
	5/0/1865	**1.88 cfs**
	5/15/1868	1.56
	5/15/1868	1.56
	5/15/1868	0.78
Total	**5/15/1868**	**3.90**
	5/15/1886	2.27
	5/15/1886	2.27
	5/15/1886	1.13
	5/15/1886	1.13
Total	5/15/1886	6.80
SCHOOLHOUSE #1 TOTAL		**15.40 cfs**

TUNNEL DITCH

	Date	Rate (cfs)
	*4/0/1866	6.48
	5/15/1878	5.81
	4/1/1888	3.75
	5/1/1954	7.50
TUNNEL TOTAL		**23.54 cfs**

BULLERDICK-HYNDMAN-MOULTON

Date	Rate (cfs)
4/15/1893	8.00
4/15/1893	3.75
4/15/1893	3.75

*Earliest priority on ditch.

IRRIGATION DIVERSIONS BELOW RUBY DAM

BULLERDICK-HYNDMAN-MOULTON, cont.

	Date	Rate (cfs)
	4/15/1893	3.75
	4/15/1893	3.75
	4/15/1893	3.50
	4/15/1893	1.75
	4/15/1893	1.25
	4/15/1893	0.50
	4/15/1893	0.25
Total	**4/15/1893**	**30.25**
	6/15/1893	10.00
	6/15/1893	7.50
	6/15/1893	0.25
Total	**6/15/1893**	**17.75**
	4/15/1907	5.25
	4/00/1907	0.50
	00/00/0000	1.25
Subtotal		**7.00 cfs**
B-H-M TOTAL		**55.00 cfs**

SILVER SPRINGS BRIDGE
DUNCAN-EDLEMAN

	Date	Rate (cfs)
	5/15/1876	2.50
	5/15/1876	0.63
Total	***5/15/1876**	**3.13 cfs**
	6/3/1876	4.50
	6/3/1876	2.50
	6/3/1876	2.50
	6/3/1876	2.00
	6/3/1876	1.88
	6/3/1876	1.00
	6/3/1876	1.00
	6/3/1876	0.88
	6/3/1876	0.88
Total	**6/3/1876**	**17.14 cfs**
	5/7/1881	2.23
	5/7/1881	2.08
	5/7/1881	2/08
	5/7/1881	0.83
Total	**5/7/1881**	**7.22 cfs**
	10/1/1898	9.11
	10/1/1898	5.06
	10/1/1898	5.06

DUNCAN-EDLEMAN, cont.

	Date	Rate (cfs)
	10/1/1898	2.03
	10/1/1898	1.65
Total	**10/1/1898**	**22.91 cfs**
	00/00/0000	2.50 cfs
DUNCAN-EDLEMAN TOTAL		**52.90 cfs**

CLARK-SENNETT DITCH

	Date	Rate (cfs)
	4/1/1875	13.29
	4/1/1875	9.96
	4/1/1875	3.33
Total	**4/1/1875**	**26.58**
	4/8/1900	6.25
CLARK-SENNETT TOTAL		**32.83**

THOMPSON DITCH

	Date	Rate (cfs)
	0/0/1866	7.50
	0/0/1866	2.38
Total	***0/0/1866**	**9.88 cfs**
	10/18/1904	20.63
	10/18/1904	9.50
Total	**10/18/1904**	**30.13 cfs**
	1/1/1915	2.50 cfs
THOMPSON TOTALS		**42.51 cfs**

BARIL-TALTY DITCH

	Date	Rate (cfs)
	*5/15/1867	7.50
	*5/15/1867	7.50
BARIL-TALTY TOTAL		**15.00 cfs**

*Earliest priority on ditch.

IRRIGATION DIVERSIONS BELOW RUBY DAM

NELSON DITCH

	Date	Rate (cfs)
	*5/1/1879	6.25 cfs
NELSON TOTAL		**6.25 cfs**

HARRINGTON BRIDGE
JONES DITCH

	Date	Rate (cfs)
	*4/15/1865	6.00 cfs
JONES TOTAL		**6.00 cfs**

SCHOOLHOUSE SLOUGH

	Date	Rate (cfs)
	*10/6/1928	2.50 cfs
SCHOOL HOUSE TOTAL		**2.50 cfs**

SARGE HALL

	Date	Rate (cfs)
	4/1/1866	5.00
	4/1/1866	1.25
	4/15/1866	3.75
	4/1866	10.00 cfs
	0/0/1866	25.00 cfs
SARGE HALL TOTAL		**35.00 cfs**

LEWIS-JENKINS DITCH

	Date	Rate (cfs)
	*0/0/1866	1.25
	0/0/1890	2.50
	0/0/1890	1.25
	0/0/1890	1.25
LEWIS-JENKINS TOTAL		**6.25 cfs**

ELLIS-THOMAS

	Date	Rate (cfs)
	*4/15/1900	2.50
ELLIS-THOMAS TOTAL		**2.50 cfs**

PHIPPS BRIDGE
GUMBOOT THOMAS

	Date	Rate (cfs)
	*0/0/1868	1.88
	6/1/1882	3.75
	6/1/1882	3.75
GUMBOOT THOMAS TOTAL		**9.38**

FRIELER DITCH

	Date	Rate (cfs)
	*4/1/1871	3.13
FRIELER TOTAL		**3.13 cfs**

SEYLER DITCH

	Date	Rate (cfs)
	*4/1/1872	10.00
	4/1/1872	1.00
SEYLER TOTAL		**11.00 cfs**

SMALL DITCH

	Date	Rate (cfs)
	*4/1/1872	5.00
	4/1/1872	2.50
	4/1/1872	2.50
	4/1/1872	1.00
Total	**4/1/1872**	**11.00 cfs**
	4/1/1942	5.00
SMALL TOTAL		**16.00 cfs**

*Earliest priority on ditch.

Appendix F

Ruby River Dewatering Prevention Plan
(Decreed Water Users Supplement)

Ruby River Dewatering Prevention Plan

The purpose of this proposal is to prevent future dewatering of the Ruby River. Dewatering in the past has resulted in the inability of the water users to receive their appropriated water, and fish kills, both of which are detrimental to the well being of the Ruby Valley.

This proposal is meant to be a supplement to the Dewatering Prevention Plan of 1988. The Dewatering Prevention Plan of 1988 was found to have the following inadequacies which need to be addressed:

1. Lack of organizational authority and enforcement of plan.

2. Inadequate gaging stations and flow measurement devices.

3. Decreed water rights below the Harrington reach of the river are not addressed.

4. The beneficial impact of using Ruby River water within the Ruby River Basin is not stressed adequately.

5. All the water in the Ruby River Basin is appropriated for irrigation and any water passed through the system to prevent dewatering is at the expense of irrigation.

6. Irrigation above the reservoir is not addressed.

Organization must start at the grassroots level. This committee feels that each ditch or diversion from the Ruby River should have an appointed representative from within its' users to communicate with the Ruby River Water Users Board. Such a representative shall be responsible to relay water information between the board and the water users. He may have to advise water users on his ditch to cut back or increase their water usage, according to River levels and water demand downstream. Water levels will be monitored at critical points along the Ruby River and relayed to the dam tender who in turn will contact the ditch representatives as to how they should regulate water in their respective ditches.

This committee would like to see the decreed water users be able to join the Ruby River Water Users Association so that only one board represents the irrigators of the Ruby River. It is felt that the irrigators would be best represented by one unified

association rather than by two associations. We recommend that the decreed users committee meet with the current board and Mel McBeth to study the feasibility of joining decreed water users and the current association.

Enforcement of this plan would come voluntarily from each irrigator and his peers. Every irrigator must realize that their actions or lack thereof have an effect on the rest of the water users in the Ruby Valley. This being a dewatering prevention plan, we feel that the irrigators of the Ruby River Basin are in the best position to prevent dewatering. The fact that there have been no dewaterings significant enough to cause fish kills in the Ruby River since the dewatering prevention plan of 1988 shows that the irrigators have worked to maintain adequate flows to benefit the fishery. However, we feel there is an insufficient data base to establish definite minimum flows. With the installation of gaging stations, and better communication between the water users, we can cooperatively monitor, establish, maintain and target minimum flow rates. Minimum flows must be studied over a 5-10 year time frame before adequate flow rates are established.

Our committee recommends gaging stations at the Alder Bridge, the Harrington Bridge, and if finances allow, the Wheatley Bridge. Information from these stations will be gathered by the dam tender and relayed to the ditch representatives as needed.

In the event that flows fall below an adequate level to maintain senior water rights, which in turn assures the health of the fishery, it shall be the responsibility of all the irrigators in the basin to help reestablish adequate flows on a prorated basis. If this approach does not work, then the junior water right holders according to the Padbury Decree shall have to be cut back according to priority dates in order to satisfy senior rights. Any legal declarations and additions to the Padbury Decree must be adhered to as well.

In the event that an emergency dewatering does take place, we recommend that the two primary diversions immediately upstream be cut back to adequately satisfy minimum flows, until sufficient water can be delivered downstream from other diversions.

This committee recommends that over a 5-10 year period all diversions from the Ruby River have adjustable headgates and measuring and diversion devices installed so that water usage can be monitored and documented. If such devices cannot be installed in the 5 year period, such improvements shall be completed in as timely manner as possible. We feel that to alleviate some of the financial burden of such installations, agencies such as SCS, State Water Quality, DNRC, TU, FWP and RC & D should be contacted for their financial assistance.

The Dewatering Prevention Plan of 1988 addressed dewatering in the Harrington reach but did not address senior decreed water rights downstream from the Harrington reach. Nearly 87 cfs are appropriated downstream from the Harrington reach from 9 different ditches. In past droughts; during high irrigation demand upstream, (May I - June I) these ditches have not been able to receive their allotted water. We recommend during such crises, the affected downstream water users call for their storage water to help alleviate the problem. Once return flows are established by upstream irrigation, this is usually not a problem.

We encourage all water users in the Ruby River Basin both above and below the reservoir to irrigate so that return flows will recharge the river and provide a more stable and reliable flow. We also recommend that staggering of turnout dates in the various diversions will help alleviate water flow problems during peak demand. Early spring and late fall irrigation are also encouraged to supply optimum return flows. In order to conserve water and put it to beneficial use, this committee recommends that all ditches, should be thoroughly cleaned to facilitate water flow.

It is our opinion that the beneficial effects of water usage, primarily irrigation, have not been recognized adequately in the past. We realize our valley is green because of irrigation, however, this is the tip of the iceberg. Only in the years since the construction of Ruby Reservoir has so much of our valley become green from additional as well as supplemental irrigation. The Ruby River fishery has become one of the finest in the world; in contrast to a stream which was dewatered almost annually in the pre-reservoir days. This fishery, the green valley, and its pristine views, have brought a much needed shot in the arm to supplement the agricultural base of this wonderful valley. Increased tourism, resulting from the fishing and hunting opportunities are an added value. Fishing lodges, sport shops bed and breakfasts, guide and outfitting businesses and escalating land values, all bring additional money into this valley. Improved habitat for a variety of wildlife, birds and fish is another spin off. The wetlands produced by irrigation make this area attractive to waterfowl. Most ranches are able to generate some additional income through fishing, and/or hunting.

The Ruby River below the reservoir is a contrast to that above. High water above the dam scours and cuts banks releasing sediment which settle out in the reservoir, leaving a wider channel, whereas below the reservoir only a mile, the channel begins to narrow with more overhanging vegetation stabilizing banks. As the runoff is poured across the meadows and into the ground, silt and organic matter is filtered out, building the soil, the subsurface reservoir is charged to provide us with return flows of cool, clear water to enhance the fishery as well as downstream water users. Flood waters are also reduced by sending spring runoff down irrigation ditches spreading it out and letting the dry spring ground absorb it. Fall irrigation helps charge the ground with water so that winter flows are adequate to keep spawning beds healthy, prevent gorging downstream as well as lessen the spring demand for irrigation.

It is generally understood that if irrigators receive their appropriated water then there will be sufficient water to keep the fishery healthy. During prolonged drought, with minimal flows, this presents a strong challenge but through cooperation of all water users in the Ruby Valley, we can use our water wisely to best benefit our valley.

Appendix G

Responsibilities for Operation & Maintenance of Stream Gaging Stations on the Ruby River Ruby River Reservoir Task

MEMORANDUM

TO: Lowell Sauerbier
President
Ruby River Water Users Association

Keith Stone
Ruby Decreed Water Users Association

FROM: Glen McDonald
Chief
Water Projects Bureau

PHONE: 444-6653

DATE: March 22, 1995

RE: Responsibilities for Installation, Operation and Maintenance of Stream Gaging Stations on the Ruby River

This memorandum outlines the commitments that have been made by the Department of Natural Resources and Conservation (DNRC), the Ruby River Water Users Association (RRWUA), and the decreed water users (Ruby Decreed Water Users Association) with respect to installation, operation and maintenance of stream gaging stations on the Ruby River. Please let me know if you have any questions or concerns about the responsibilities outlined below.

Larry Dolan (444-6627) will be the DNRC's coordinator for this project. Tentative locations for gaging stations (depending on site suitability and access) are near the following bridges: Alder, Silver Springs, Harrington, and Wheatley.

DNRC Responsibilities

- Loan four water level recorders (and accessories including floats, weights, pens and charts) to Ruby River water users for the purpose of implementing the Plan to Avoid Dewatering of the Ruby River Project.

- Provide technical assistance in the location and installation of stream gages. Specifically, the DNRC will consult with the water users on identifying suitable sites, develop a list of materials and equipment needed for installation, and provide technical oversight of installation.

- Disseminate data collected to the RRWUA, the Ruby Decreed Water Users Association, and any other interested parties.

RRWUA Responsibilities

- Obtain access to the sites selected for gaging stations.
- Provide materials, equipment and labor for installation of gaging stations.

Ruby Decreed Water Users Association Responsibilities

- Rate and maintain the recorders.
- Collect and extract the data from the charts.
- Provide sheets containing average daily streamflows for all four recording stations to the DNRC by November 15 of each year.

Appendix H

Staff Gage Locations and Observers

Appendix H

Ruby River Water Delivery and Dewatering Prevention Plan
Key Contacts

Staff Gage Locations and Observers

Location	Observer	Phone
Coy Brown	Neil Todd	842-5562
Alder	Harold Kelly	842-5294
Laurin	Charlie Galiger	842-5643
Silver Springs	Jay Barnosky	842-5261
Harrington	Jack Fenton	842-5577
Wheatley	Terry Todd	684-5871

RRWUA Contacts

Neil Todd Dam tender, Secretary	842-5562	Lowell Sauerbier President	842-5295
Jim Anderson Vice President	842-5278	Steve Burke	842-5152
Charlie Galiger	842-5643	Jay Barnosky	842-5261

Ruby Decreed Water Users Contacts

Keith Stone 842-5605
President

Bruce Peterson 842-5325
(Above Ruby Dam)

Bill Doggett 842-5305
(Ruby Canyon, Stanley, Passamari, Bob Peters and Phillips ditches)

Steve Wood 842-5722
(Elser-Finely-Norton, Putnam, Dauterman-Moran, Ruby Valley and Laurin ditches)

John Funk 842-5424
(Schoolhouse # 1 & 2, Tunnel,
Bullerdick-Hyndman-Moulton and
Duncan-Edleman ditches)

Jack Fenton 842-5577
(Clark-Sennett, Thompson, Baril-Talty,
Nelson and Jones ditches)

Terry Todd 684-5871
(Schoolhouse Slough, Sarge Hall,
Lewis-Jenkins, Ellis-Thomas, Gumboot,
Frieler, Seyler, and Small ditches)

Steve Burke 842-5152
(Clear Creek)

DNRC Contacts

Glen McDonald 444-6653 (w)
443-5758 (h)

Gary Fritz 444-6605 (w)
443-3631 (h)

DFWP Contact

Dick Oswald 683-9310 (o)
683-2601 (h)